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REPORT NO. 1496

HYDROCARBON COMBUSTION AND PHYSICAL PROPERTIES

by

Dudley J. McCracken

September 1970



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U.S. ARMY ABERDEEN RESEARCH AND DEVELOPMENT CENTER BALLISTIC RESEARCH LABORATORIES
ABERDEEN PROVING GROUND, MARYLAND

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Terminal Ballistics Laboratory

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ABERDEEN PROVING GROUND, MARYLAND

BALLISTIC RESEARCH LABORATORY

REPORT NO. 1496

DJMcCracken/meg Aberdeen Proving Ground,Md. September 1970

HYDROCARBON COMBUSTION AND PHYSICAL PROPERTIES

ABSTRACT

Many tabulations of hydrocarbon combustion properties are found in the literature. Unfortunately, most of these report what the author believes to be the best value for each property, and do not include all combustion properties. This report presents a compilation of combustion and physical properties which can be used in a variety of combustion problems. Referenced values are included for flash point, flammability limits, autoignation temperature, maximum flame velocity, minimum ignition energy, and quenching distance. The physical properties include molecular weight, carbonhydrogen ratio, vapor density, heats of combustion and vaporization, liquid density, refractive index, surface tension, viscosity and vapor pressure data.

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I. INTRODUCTION

The purpose of this report is to collate hydrocarbon combustion and physical properties which appear in the literature. Only those hydrocarbons are included for which combustion data has been reported.

The hydrocarbons are grouped into alkanes, naphthenes, alkenes, dienes alkynes, aromatics, fuzed rings and a final group which includes hydrocarbons which would fit within two or more groups. In each group, the compounds are listed in order of increasing carbon number.

Each experimental value in the report is followed by references and notes which apply to that value. References are denoted by numbers and notes by letters. When an author cited a primary source which could not be obtained by this author, both sources have been cited in this report. It must be pointed out that many authors did not give references even though they did not do the original work. The following examples illustrate the system of references and notes:

- 1,2,3 Datum listed in references 1,2 and 3.
- (1)(2) Datum listed in reference 1 which cites reference 2.
- 1(A) Note A applies to the datum in reference 1.
- (1)(2)(A) Note A applies to the datum listed in reference 1 which cites reference 2 as the source.
- 1(A,B) Notes A and B apply to the datum listed in reference 1.
- (1,2)(A,B) Notes A and B apply to both references 1 and 2.

An alphebetical list of compounds and synonyms which are included in this report is given in Section VI.

II. COMBUSTION PROPERTIES

A. Flash Point

The flash point is defined as the lowest liquid temperature at which the vapor gives a visible flash of light when a small flame is applied in a prescribed type of apparatus. The American Society for Testing and Materials (ASTM Standards, Part 17, 1968) recognizes four types of apparatuses that may be used to determine the flash point of a liquid. The Tag open-cup tester (ASTM-D 1310) may be used for liquids having flash points between 0°F (-18°C) and 235°F (113°C). The Tag closed tester (ASTM-D 56) may be used for all mobile liquids having flash points below 175°F (79°C), except products classified as Grade No. 4 or heavier fuel oil. The Cleveland open-cup tester (ASTM-D 92) may be used for flash point determination of all petroleum products except fuel oils and those having open-cup flash points below 175°F (79°C). The Pensky-Martens closed tester (ASTM-D 93) may be used for fuel oils, lubricating oils, viscous materials and suspensions of solids, but may not be used for drying oils, solventtype liquid waxes or cut-back asphalt. The type of apparatus used to determine the flash point was listed as a note in this report whenever it was given in the referenced article, however, many of the published tables of flash points differentiate only between the closed- and open-cup test. The flash point was converted by this author from the usual units of degrees Fahrenheit to degrees Centigrade to conform with Army policy and was rounded off to the nearest 0.5°C after conversion. Flash points are given as closed cup(cc) or open cup(oc).

B. Flammable Limits

The flammable region of a compound is defined as the range of vapor concentrations in an oxidizing atmosphere such as oxygen or air in which flame will propagate over a prescribed distance determined by

the apparatus after the vapor has been ignited. Ignition may be by any source such as spark, hot wire, exploding wire or flame. For each hydrocarbon there will be a region of flammable concentrations. In this report the lower and upper bounds of this region (LEL and UEL) are given in volume per cent of hydrocarbon in air. Unless otherwise noted, the flammable limits are given in air. Flammable limits in oxygen are denoted by note (B). Notes are included in this report to describe the type of apparatus and system temperature when a description was given in the literature source.

C. Autoignition Temperature

The ASTM standardized a procedure and apparatus for the determination of autoignition temperature and autoignition delay in 1963 as procedure D 2155. (ASTM Standards, Part 17, 1968.) The procedure involves injecting a drop of liquid into a preheated borosilicate Erlenmeyer flask at atmospheric pressure. The lowest flask temperature at which a sudden flash of light occurs for a series of prescribed sample volumes is taken to be the autoignition temperature, and the time from introduction of the fuel droplet into the flask for the flash to occur is taken to be the autoignition delay time.

Various configurations and materials of construction of the combustion chamber, such as crucibles, flasks, bombs and spheres made of stainless steel, iron or glass have been used by various investigators. The combustible material has been introduced in a vapor, spray or drop form. The fact that the autoignition temperature is extremely dependent on the material of construction, configuration of apparatus, and test procedure is immediately evident by noting that values of 208, 232, 236, 250, 253, 425, and 463°C have been reported for the autoignition temperature of decane in air at atmospheric pressure. The literature values listed in this report

are referenced, but the procedure and test apparatus are included as a note in only those cases where original papers were located. The autoignition temperature was converted by this author from Fahrenheit to Centigrade and rounded to the nearest degree after conversion.

D. Maximum Flame Velocity and Temperature

The maximum flame velocities reported in the literature were calculated for a flame front propagating down a tube or for a Bunsen Burner flame. The volume percent fuel which gave the maximum velocity was noted and the adiabatic flame temperature corresponding to that fuel concentration was calculated for both cases. The Bunsen burner experiments gave values about 10 percent higher than the tube experiments. Both experimental procedures used an oxidizing atmosphere of air.

E. Minimum Ignition Energy and Quenching Distance

The minimum ignition energies listed in this report apply to spark ignition. The reported distances were the minimum electrode spacings with which ignition was possible. Values are listed for stoichiometric fuel-air minimum ignition energy and quenching distance at atmospheric pressure. The minimum ignition energy and quenching distance for any fuel-air mixture was listed as the absolute minimum ignition energy and absolute minimum quenching distance. It should be noted that the electrode spacing which gave the minimum ignition energy is not the same as the quenching distance.

III. PHYSICAL PROPERTIES

A. Molecular Weight and Carbon-Hydrogen Ratio

An atomic weight of 12.011 for carbon and 1.00 for hydrogen have been used in the calculation of the molecular weight (MW). The carbon-hydrogen ratio (C/H) is a weight ratio.

B. Vapor Density

The vapor density (VD) as used in the literature might more aptly be termed the vapor specific gravity since it is calculated as the ratio of the molecular weight of air to the molecular weight of hydrocarbon.

C. Heats of Combustion and Vaporization

The net heat of combustion of hydrocarbon liquid (gas) refers to the energy released during the complete combustion of liquid (gaseous) hydrocarbon to gaseous water and carbon dioxide at 25°C. The gross heat of combustion refers to liquid water and gaseous carbon dioxide products at 25°C. Heats of combustion and vaporization have been converted to Kcal/mole and cal/gram when given in other units.

D. Density, Refractive Index, Surface Tension and Viscosity

An attempt was made to report these properties at the same temperatures, and preferably by the same author, for each separate compound. The units are grams per milliliter(gram/ML) for density, dynes per square centimeter for surface tension, and centistokes (cs) for viscosity. In a few cases the viscosity was given in Saybolt Seconds Universal (SSU).

E. Vapor Pressure

Vapor pressure in millimeters of mercury are listed as a function of temperature in degrees Centigrade. Two sets of vapor pressure equation coefficients have been calculated by the author using a least squares technique. The first set of coefficients apply to Equation 1, Antoine's equation, which is of the form,

$$Log_{10}p = A + B/(T+C),$$
 (1)

where p is vapor pressure in mm of Hg, T is temperature in degrees C, and A,B, and C are constants. The second set of coefficients apply to Equation 2.

$$Log_{p} = A + B/T + C(Log_{p}T) + Dp/T^{2},$$
 (2)

where p is vapor pressure in mm of Hg, T is temperature in degrees Kelvin, and A, B, C, and D are constants.

Vapor pressure is easier to calculate by hand from Antoine's equation because it is explicit in vapor pressure. Equation 2, which is implicit in vapor pressure, in general yields more accurate results. The maximum error is defined as being

The maximum error and the vapor pressure at which the maximum error occurs is listed beside each set of coefficients. The coefficients should be used only over the range 1 mm to 760 mm of Hg for the maximum error to apply. In cases where the melting point is in this range, either the coefficients listed here may be used, or if more accurate data are necessary, the Antoine coefficients from other sources which apply only to the solid or liquid phase should be used, since a discontinuity in the vapor pressure curve will occur at the melting point.

IV. HYDROCARBON PROPERTIES

METHANE

```
SYNONYMS. MARSH GAS, METHYL HYDRIDE

        HEAT OF COMBUSTION
        KCAL/MOLE
        CAL/GRAM
        REF

        OF GAS
        (NET)
        191.76
        11953.
        11

        (GROSS)
        212.80
        13264.
        11

                          (GROSS)
HEAT OF VAPORIZATION(25 C)
DENSITY (GRAM/ML)
REFRACTIVE INDEX
SURFACE TENSION
VISCOSITY (CS)
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
P 1 10 30 40 100 400 760 REF T -205.9 -195.5 -187.7 -181.4 -168.8 -161.5 21
VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P

EQUATION 1 -3.5151 -445.84 95.01 220.23 1.

EQUATION 2 15.328 -1142.5 .39 -5.3501 1.70 400.
                                                                           1.70 400.
 ------
FLASH POINT(DEG C) (CC) REF (OC) REF -188. (8)(9)
FLAMMABLE LIMITS LOWER
VOL PER REF
3.8 13(U)
                                                  UPPER
VOL PER REF
14.2 13(U)
15. (8)(!5
                      5.0 (8)(15)
5.1 12(A,B)
5.26 (17)(77)
5.3 1,3,4,12(A)
                                                                   (8)(25)
                                                                  12(A,B)
                                                        14.3 (17)(77)
                                                       14.0 1,3,12(A)
                                                        14.85 53(W,X)
                      5.35
                                53(W.X)
                                                        13.95 53(W,Y)
13.35 53(W,Z)
                      5.40 53(W,Y)
5.95 53(W,Z)
                                                         13.9
AUTOIGNITION TEMPERATURE
      DEG C DELAY(SEC) REF
537. 3.4 538. 1
556. (22)(36)(8) 632. (22)(48)
       645.
                                 28(AL)
MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K)

33.8 (69)

STOICH REF

MIN IGN ENERGY(MILLIJOULE) = .33 56

QUENCHING DISTANCE(CM) = .19 80

VOL PERCENT FUEL

9.96 (69)

ABS MIN REF
.29 56
.08 (7)(56)
```

ETHANE

| FORMULA= C2H6 C/ | | | | |
|---|---|--|---|------|
| HEAT OF COMBUSTION | | LE CAL/O | RAM REF | |
| | ET) 341.2 | | | |
| | ROSS) 372.8 | 32 1239 | 11 | |
| HEAT OF VAPORIZATIONS | | | | |
| DENSITY (GRAM/ML) | | | | |
| REFRACTIVE INDEX | | | | |
| SURFACE TENSION VISCOSITY (CS) | | | | |
| VAPOR PRESSURE(MM HG) | | | | |
| P 1 10 | 30 40 | 100 400 | 760 | REF |
| T -159.5 -142.9 | -129.8 - | 119.3 -99.7 | -88.6 | 21 |
| VAPOR PRESSURE EQUAT | | | | |
| A | ВС | . D | MAX ERR | AT P |
| EQUATION 1 1.5630 EQUATION 2 48.996 | 5.61 104 | .39 | 2792.04 | 1. |
| EQUALIUN 2 48.996 | -2098.8 -5 | -34 4.4339 | | 400. |
| | | | | |
| | | | | |
| | WER | UPPER | | |
| VOL PER | WER REF | UPPER VOL PER | REF | |
| VOL PER 2.8 2.9 | WER REF 13(U) (8)(15) | UPPER VOL PER 13.8 1 13. (| REF 3(U) 8)(15) | |
| VOL PER 2.8 2.9 3.0 | WER REF 13(U) (8)(15) 3,4,12(A) | UPPER VOL PER 13.8 1 13. (12.5 3 | REF 3(U) 8)(15) ,4,12(A) | |
| VOL PER 2.8 2.9 3.0 3.12 | MER REF 13(U) (8)(15) 3,4,12(A) 53(W,X) | UPPER VOL PER 13.8 1 13. (12.5 3 14.95 5 | REF 3(U) 8)(15) ,4,12(A) 3(W,X) | |
| VOL PER 2.8 2.9 3.0 3.12 3.15 | REF 13(U) (8)(15) 3,4,12(A) 53(W,X) 53(W,Y) | UPPER VOL PER 13.8 1 13. (12.5 3 14.95 5 | REF 3(U) 8)(15) ,4,12(A) 3(W,X) 3(W,Y) | |
| VOL PER 2.8 2.9 3.0 3.12 3.15 3.26 | REF 13(U) (8)(15) 3,4,12(A) 53(W,X) 53(W,Y) 53(W,Z) | UPPER VOL PER 13.8 1 13. (12.5 3 14.95 5 12.85 5 10.15 5 | REF 3(U) 8)(15) ,4,12(A) 3(W,X) 3(W,Y) 3(W,Z) | |
| VOL PER 2.8 2.9 3.0 3.12 3.15 3.26 3.3 | REF 13(U) (8)(15) 3,4,12(A) 53(W,X) 53(W,Y) 53(W,Z) | UPPER VOL PER 13.8 1 13. (12.5 3 14.95 5 | REF 3(U) 8)(15) ,4,12(A) 3(W,X) 3(W,Y) 3(W,Z) | |
| VOL PER 2.8 2.9 3.0 3.12 3.15 3.26 3.3 3.0 | REF 13(U) (8)(15) 3,4,12(A) 53(W,X) 53(W,Y) 53(W,Z) 1 | UPPER VOL PER 13.8 1 13. (12.5 3 14.95 5 12.85 5 10.15 5 10.60 1 | REF 3(U) 8)(15) ,4,12(A) 3(W,X) 3(W,Y) 3(W,Z) | |
| 2.8 2.9 3.0 3.12 3.15 3.26 3.3 3.0 | REF 13(U) (8)(15) 3,4,12(A) 53(W,X) 53(W,Y) 53(W,Z) 1 12(A,B) | UPPER VOL PER 13.8 1 13. (12.5 3 14.95 5 12.85 5 10.15 5 10.60 1 66. 1 | REF 3(U) 8)(15) ,4,12(A) 3(W,X) 3(W,Y) 3(W,Z) 2(A,B) | |
| VOL PER 2.8 2.9 3.0 3.12 3.15 3.26 3.3 3.0 AUTOIGNITION TEMPERATION DEG C DELAY(SEC | WER REF 13(U) (8)(15) 3,4,12(A) 53(W,X) 53(W,Y) 53(W,Z) 1 12(A,B) URE REF | UPPER VOL PER 13.8 1 13. (12.5 3 14.95 5 12.85 5 10.15 5 10.60 1 66. 1 | REF 3(U) 8)(15) ,4,12(A) 3(W,X) 3(W,Y) 3(W,Z) 2(A,B) | |
| VOL PER 2.8 2.9 3.0 3.12 3.15 3.26 3.3 3.0 AUTOIGNITION TEMPERATION DEG C DELAY(SEC | WER REF 13(U) (8)(15) 3,4,12(A) 53(W,X) 53(W,Y) 53(W,Z) 1 12(A,B) URE REF | UPPER VOL PER 13.8 1 13. (12.5 3 14.95 5 12.85 5 10.15 5 10.60 1 66. 1 | REF 3(U) 8)(15) ,4,12(A) 3(W,X) 3(W,Y) 3(W,Z) 2(A,B) | |
| VOL PER 2.8 2.9 3.0 3.12 3.15 3.26 3.3 3.0 AUTOIGNITION TEMPERATION DEG C DELAY(SEC 472.510. | REF 13(U) (8)(15) 3,4,12(A) 53(W,X) 53(W,Y) 53(W,Z) 1 12(A,B) URE (22)(29) 1 | UPPER VOL PER 13.8 1 13. (12.5 3 14.95 5 12.85 5 10.15 5 10.60 1 66. 1 DEG C R 504. 9 515. 3 | REF 3(U) 8)(15) ,4,12(A) 3(W,X) 3(W,Y) 3(W,Z) 2(A,B) EF | 161 |
| VOL PER 2.8 2.9 3.0 3.12 3.15 3.26 3.3 3.0 AUTOIGNITION TEMPERATION DEG C DELAY(SEC) 472. 510. | REF 13(U) (8)(15) 3,4,12(A) 53(W,X) 53(W,Y) 53(W,Z) 1 12(A,B) URE) REF (22)(29) 1 | UPPER VOL PER 13.8 1 13. (12.5 3 14.95 5 12.85 5 10.15 5 10.60 1 66. 1 DEG C R 504. 9 515. 3 | REF 3(U) 8)(15) ,4,12(A) 3(W,X) 3(W,Y) 3(W,Z) 2(A,B) EF | JEL |
| VOL PER 2.8 2.9 3.0 3.12 3.15 3.26 3.3 3.0 AUTOIGNITION TEMPERATION DEG C DELAY(SEC) 472. 510. MAX FLAME VEL(CM/SEC) 40.1 (69) | REF 13(U) (8)(15) 3,4,12(A) 53(W,X) 53(W,Y) 53(W,Z) 1 12(A,B) URE) REF (22)(29) 1 FLAME TEMP(D 2246 (55) STOICH R | UPPER VOL PER 13.8 1 13. (12.5 3 14.95 5 12.85 5 10.15 5 10.60 1 66. 1 DEG C R 504. 9 515. 3 | REF 3(U) 8)(15) ,4,12(A) 3(W,X) 3(W,Y) 3(W,Z) 2(A,B) | JEL |
| VOL PER 2.8 2.9 3.0 3.12 3.15 3.26 3.3 3.0 AUTOIGNITION TEMPERATION DEG C DELAY(SEC) 472. 510. | REF 13(U) (8)(15) 3,4,12(A) 53(W,X) 53(W,Y) 53(W,Z) 1 12(A,B) URE) REF (22)(29) 1 FLAME TEMP(D 2246 (55) STOICH R | UPPER VOL PER 13.8 1 13. (12.5 3 14.95 5 12.85 5 10.15 5 10.60 1 66. 1 DEG C R 504. 9 515. 3 | REF 3(U) 8)(15) ,4,12(A) 3(W,X) 3(W,Y) 3(W,Z) 2(A,B) | JEL |

PROPANE

SYNONYMS. DIMETHYLMETHANE

```
FORMULA= C3H8 C/H= 4.469 MW= 44.097 VD= 1.5206

        HEAT OF COMBUSTION
        KCAL/MOLE
        CAL/GRAM
        REF

        OF GAS
        (NET)
        488.53
        11078.
        11

        (GROSS)
        530.61
        12033.
        11

        HEAT OF VAPORIZATION(25 C)
        3.60
        81.75
        11

20 C REF 25 C REF
DENSITY (GRAM/ML) .5005 11(D) .4928 11(D)
REFRACTIVE INDEX 1.2898 20
 SURFACE TENSION
 VISCOSITY (CS)
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
P 1 10 30 40 100 400 760 REF
T -128.9 -108.5 -92.4 -79.6 -55.6 -42.1 21
VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P

EQUATION 1 1.7189 5.14 102.97 3216.45 1.

EQUATION 2 56.562 -3644.8 -6.29 7.5738 .24 40.
FLASH POINT(DEG C) (CC) REF (OC) REF -104.5 1, (8)(9)
                                                             UPPER
 FLAMMABLE LIMITS LOWER
                       VOL PER REF
2.1 (8)(15)
2.2 13(U)
                                                               VOL PER REF
                                                               9.5
                                                                               (8)(15)
                                                                   10.7 13(U)
                           2.2 3,4,12(A)
                                                                   9.5 3,12(A)
                           2.3
                                      1
                                                                    7.3
                                                                              1
                                                                    9.6
                          2.3 12(A,B)
2.4 (17)(78)(B)
                                                                   55. 12(A.B)
57. (17)(78)(B)
                                        (17)(78)(B)
AUTOIGNITION TEMPERATURE
                                                               DEG C REF
        DEG C DELAY(SEC) REF
                                                                468. 1
                      13. 54(B,AX)
6. 54(AX)
6.0 49
        468.
        493.
MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K)

39.0 (69)

STOICH REF

MIN 1GN ENERGY(MILLIJOULE) = .4 56

QUENCHING DISTANCE(CM) = .21 56

VOL PERCENT FUEL

4.54 (69)

ABS MIN REF

.25 56

.19 56
```

BUTANE

```
SYNONYMS. METHYLETHYLMETHANE. BUTYL HYDRIDE

        HEAT OF COMBUSTION
        KCAL/MOLE
        CAL/GRAM
        REF

        OF GAS
        (NET)
        635.05
        10926.
        11

        (GROSS)
        687.65
        11831.
        11

        HEAT OF VAPORIZATION(25 C)
        5.03
        86.62
        11

20 C REF 25 C REF
DENSITY (GRAM/ML) .5788 11(D) .5730 11(D)
REFRACTIVE INDEX 1.3326 11(D) 1.3292 11(D)
SURFACE TENSION
VISCOSITY (CS)
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
P 1 10 30 40 100 400 760 REF T -101.5 -77.8 -59.1 -44.2 -16.3 -.5 21
 VAPOR PRESSURE EQUATION COEFFICIENTS
A B C D MAX ERR AT P EQUATION 2 63.793 -4572.0 -7.22 10.7405 -.24 10.
FLASH POINT(DEG C) (CC) REF (OC) REF -60. 1.4 -74. (8)(9)
FLAMMABLE LIMITS LOWER

VOL PER REF

1.6 1

1.7 13(U)

1.8 (8)(15)

1.9 3,4,12(A)

1.93 (17)(77)

1.8 12(A,B)
                                                   UPPER
                                                  UPPER
VOL PER REF
6.5 1
9.4 13(U)
8.4 (8)(15)
8.5 3.4.12(A)
9.05 (17)(77)
49. 12(A,B)
AUTOIGNITION TEMPERATURE
       DEG C DELAY(SEC) REF
                                                     DEG C REF
                   3,4
5. 54(AV)
       405.
                                                     430. 1
                                54(AX)
       408.
283.
430.
                   28.
                               54(B,AX)
                   6.0
                                                      431. 9, (7) (26)
                               49
  MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K)

37.9 (69)

STOICH REF

MIN IGN ENERGY(MILLIJOULE) = .76 56

QUENCHING DISTANCE(CM) = .3 7

VOL PERCENT FUEL

3.52 (69)

ABS MIN REF

.25 56

.18 7
```

2-METHYL PROPANE

QUENCHING DISTANCE(CM)=

```
SYNONYMS. ISOBUTANE, TRIMETHYLMETHANE
HEAT OF COMBUSTION KCAL/MOLE CAL/GRAM REF
OF GAS (NET) 633.05 10891. 11
                                  633.05 10891. 11
685.65 11796. 11
4.57 78.62 11
                               633.05
685.65
                     (GROSS)
HEAT OF VAPORIZATION(25 C)
20 C REF 25 C REF
DENSITY (GRAM/ML) .5572 11(D) .5510 11(D)
REFRACTIVE INDEX 1.3169 20
SURFACE TENSION
VISCOSITY (CS)
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
P 1 10 30 40 100 400 760
T -109.2 -86.4 -72.5 -54.1 -11.7
                                                                    REF
                                                                     20
VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P

EQUATION 1 6.7582 -886.49 240.37 .15 10.

EQUATION 2 63.555 -4357.2 -7.25 9.7880 .00 30.
FLASH POINT(DEG C) (CC) REF (OC) REF -82.5 4.(8)(9)
FLAMMABLE LIMITS LOWER VOL PER REF
                                             UPPER
                                           VOL PER REF
                                          8.4
                 1.8 3,4,(8)(15)
                                                      3,4,(8)(15)
                         12(A)
                                             8.4
                  1.8
                                                      12(A)
                                             8.5
                  1.9
                  1.9 1
2.0 13(V)
1.83 65
                                             9.3
                                                     13(V)
                                             8.43
                                                      65
                                              48. 12(A,B)
                         12(A,B)
                  1.8
AUTOIGNITION TEMPERATURE
     DEG C DELAY(SEC) REF
                                      DEG C REF
                         1
65
65(B)
49
     543.
                                            462. 3,4
                 14.
     462.
                19.2
     319.
     477.
                18.0
MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 34.9 (69) 2259 (55) 3.48 (69) STOICH REF ABS MIN REF
MIN IGN ENERGY(MILLIJOULE) =
```

PENTANE

SYNONYMS. AMYL HYDRIDE

```
FORMULA= C5H12 C/H= 4.965 MW= 72.151 VD= 2.4880
                         _____

      HEAT OF COMBUSTION
      KCAL/MOLE
      CAL/GRAM
      REF

      OF LIQUID
      (NET)
      775.66
      10750.
      11

      (GROSS)
      838.78
      11625.
      11

      HEAT OF VAPORIZATION(25 C)
      6.32
      87.54
      11

20 C REF 30 C REF
DENSITY (GRAM/ML) .62624 11 .31649 20
REFRACTIVE INDEX 1.35748 11 1.35194 20
SURFACE TENSION 16.05 (8)(60) 14.95 20
VISCOSITY (CS) .375 20 .351 20
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
P 1 10 30 40 100 400 760 REF
T -76.6 -50.1 -29.2 -12.6 18.5 36.1 21
 VAPOR PRESSURE EQUATION COEFFICIENTS
A B C D MAX ERR AT P EQUATION 1 6.8402 -1059.60 231.51 -.16 10. EQUATION 2 70.222 -5477.7 -8.02 14.2734 -.30 10.
                                                                        -.16 10.
                                                                                     10.
 ______
FLASH POINT(DEG C) (CC) REF (OC) REF -49.5 1,4,10
FLAMMABLE LIMITS LOWER
                                                       UPPER
              .IMITS LOWER UPPER VOL PER REF 1.0 AT 28 C 14(U) 9.15 AT 28 C 14(U)
                     1.4 4.(8)(15) 8.0 4
                                                     8.7 13(U)
8.0 53(W,X)
7.45 53(W,Y)
4.64 53(W,Z)
7.8 3,12(A)
8.3 (8)(15)
                                13(U)
53(W,X)
                                                               13(U)
                     1.4
                     1.42
                                53(W,Y)
53(W,Z)
                     1.44
                     1.48
                                3.12(A)
                     1.5
                     1.62 (17)(77)
AUTOIGNITION TEMPERATURE
       DEG C DELAY(SEC) REF
284. 9
296. 8. 54(AX)
                                                   DEG C REF
                                                     309. 1,3,4
                   8.
40.
                              54(B,AX)
       264.
                               (22)(24)(B) 579.
       300.
                                                                40(N)
                    24.0
                                49
                                                     418.
MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 2849 (55) 2.92 (69) STOICH REF ABS MIN REF
MIN IGN ENERGY(MILLIJOULE) = .82 (7)(57)(E) .22 (7)(59)(F)
QUENCHING DISTANCE(CM) = .33 7 .18 7
```

2-METHYLBUTANE

| | | K C | | | RAM REF | |
|-----------------|--------------|-------------------|-----------|---------|-----------|---------|
| HEAT OF COM | B03110N | (NET) | 774.10 | 10729 | 11 | |
| | (6 | ROSS) | 837.22 | 11604 | ii | |
| HEAT OF VAP | ORIZATION | 25 C) | 5.94 | 82.2 | 29 11 | |
| | | | | | | |
| DENSITY (GR. | AH/ML) .61 | 967 11 | .6146 | 2 11 | | |
| REFRACTIVE | INDEX 1.3 | 5373 11 | 1.350 | 11 88 | | |
| SURFACE TEN | SION 15. | 00 (8)(6 | | | | |
| VISCOSITY (| CS) .36 | 4 20 | | | | |
| VAPOR PRESS | | | | | | |
| | | | | | 760 | REF |
| P 1 T -82.9 | -57.0 | -36 | .5 -20.2 | 10.5 | 27.8 | 21 |
| VAPOR PRES | SURF FOUAT | ION COFFFIC | CLENTS | | | |
| EQUATION 1 | A | 8 | C | D | MAX ERR | AT P |
| EQUATION 1 | 6.7791 | -1015.94 | 232.77 | | .20 | 400 - |
| EQUALION 2 | 10.821 | -2302.6 | -8.19 | 12.0024 | .33 | 40. |
| FLASH POINT | | | | | F | |
| | | -51. 1 | | | • | |
| | | -56.5 10 | | | | |
| Flammable L | IMITS 10 | | | UPPER | | |
| -CANNADLE L | AUI DEB | BEE | VO | I DED D | FE | |
| | 1.1 | REF 13(V) | ** | 7.7 17 | (V) | |
| | 1.4 | 3,4,(8) | 15) | 7.6 3. | A | |
| | 1.4 | 12(4) | | 7.6 12 | (A) | |
| | 1.61 | 12(A) (17)(77) | 1 | 1.0 | | |
| | 1.01 | (11/(1/ | • | | | |
| | | | | | | |
| AUTOIGNITIO | DELAYISEC | | 0 | EG C RE | £ | |
| 427. | 6.0 | 49 | _ | 20. 1. | · | |
| 294. | 0.0 | 54 (B) | | 20. 54 | - | |
| £ , , , | | ,,,,,, | • | 200) | | |
| MAX FLAME V | EL (CM/SEC) | FLAME TE | MP(DEG K) | V01 | PERCENT F | UEL |
| 36.6 | | | (55) | . 32 | 2.89 (69) | |
| | | | H REF | ABS M | | |
| | | | | | | |
| IN IGN ENER | GY (MILLIJ | | | | |)(F) |

2.2-DIMETHYL PROPANE

| HEAT OF CUM | ABUSTION | V | | KCAL | /MOLE | C | AL/GRAM | REF | |
|----------------------------|----------------------------------|--|------------------------------|-----------------|-----------------|---------------------------|---------------------------------------|---------|------|
| OF LIQUID | | (N | ET) | 77. | 2.03 | | 10700. | 11 | |
| HEAT OF VAP | PORIZATI | ION(25 | C) | | 5.15 5.20 | | 72.14 | 1.1 | |
| | | | | | 25 C | | | | 0.00 |
| DENSITY (GR | | | | | | | | | KLI |
| REFRACTIVE | | | | | | | | · | |
| SURFACE TEN VISCOSITY (| ISI ON (CS) | 12.05 | | | | | | 10.98 | 20 |
| VAPOR PRESS | | | EMPER | ATURE | (DEG C) | DATA | | | |
| P 1 | | | | | | | | | |
| T -102.0 | | | | -56.1 | -39.1 | | -7.1 | 9.5 | 21 |
| VAPOR PRES | SURE EC | OITAU | N COE | FF1C18 | NTS | | | | |
| | A | | В | | C | | D | MAX ERR | AT P |
| EQUATION 1 | 6.469 | 34 - | 905.4 | 6 2 | 242.05 | , , | 0310 | 2.92 | |
| EQUATION 2 | | | | | -10.45 | 47. | 7319 | 1/ | 40. |
| FLASH POINT | (DEG C) | -69 | | (8)(9) |) _{II} | (OC) | REF | | |
| | | | | | , | | | | |
| FLAMMABLE L | | LOWER | | | | UP | PER | · | |
| FLAMMABLE L | | | R | | | | | | |
| FLAMMABLE L | VOL 1. | PER 3 | REF 13(V |) | vo | L PE 8.7 | R REF 13(V) | | |
| FLAMMABLE L | VOL 1. | PER 3 4 | REF 13(V 3,4, |) (8)(15 | vo | L PE 8.7 7.5 | R REF 13(V) 3,4 | | |
| FLAMMABLE L | VOL 1. | PER 3 | REF 13(V 3,4, |) (8)(15 | vo | L PE 8.7 7.5 | R REF 13(V) | | |
| FLAMMABLE L | VOL 1. 1. | PER .3 .4 .4 | REF 13(V 3,4,4 |) (8)(15 | vo | L PE 8.7 7.5 | R REF 13(V) 3,4 | | |
| AUTOIGNITIO DEG C | VOL 1. 1. 1. N TEMPE | PER 3 4 .4 .4 ERATURE SEC) | REF 13(V 3,4,1 12(A |) (8)(15 | vo | L PE 8.7 7.5 7.5 | R REF 13(V) 3+4 12(A) REF | | |
| AUTOIGNITIO DEG C | VOL 1. 1. | PER 3 4 .4 .4 ERATURE SEC) | REF 13(V 3,4,1 |) (8)(15 | vo | L PE 8.7 7.5 7.5 | R REF 13(V) 3+4 12(A) | | |

HEXANE

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SYNONYMS. HEXYL HYDRIDE
FORMULA= C6H14 C/H= 5.107 MW= 86.178 VD= 2.9717
                    -----
HEAT OF COMBUSTION KCAL/MOLE CAL/GRAM REF
OF LIQUID (NET) 921.37 10691. 11 (GROSS) 995.01 11546. 11 HEAT OF VAPORIZATION(25 C) 7.54 87.49 11
20 C REF 30 C REF
DENSITY (GRAM/ML) .65937 11 .65023 20
REFRACTIVE INDEX 1.37486 11 1.36938 20
SURFACE TENSION 18.40 (8)(60) 17.38 20 VISCOSITY (CS) .4727 (8)(60) .4389 20
                                                 20
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
P 1 10 30 40 100 400 760 REF
T -53.9 -25.0 -2.3 15.8 49.6 68.7 21
VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P
QUATION 1 6.8608 -1152.15 223.29 -.03 760.
EQUATION 1 6.8608 -1152.15 223.29 -.03 760.
EQUATION 2 77.262 -6404.1 -8.92 18.2939 -.22 400.
FLASH POINT(DEG C) (CC) REF (OC) REF -21.5 3,4 -25.5 4
                       -23.5 10
FLAMMABLE LIMITS LOWER UPPER

VOL PER REF

1.1 AT 50 C 14(U)

8.6 AT 50 C 14(U)
                                            7.7 (8)(15)
6.9 1
                  1.1
                          6
                          1,3,4,(8)(15)
                  1.2
                          12(A),13(U) 7.5 3,4,6,12(A)
                  1.2
                  1.46
                          (17)(77)
                                            8.1
                                                    13(U)
AUTOIGNITION TEMPERATURE
                                        DEG C REF
248. (22)(41)
260. 1
      DEG C DELAYISEC) REF
                           3,4
      234.
      253.
                           38
                          49 261. 6,(22)(43)
(22)(24)(B) 487. (22)(23)
      261.
               30.0
      296.
MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K)

38.5 (69)

2241 (55)

STOICH REF

MIN IGN ENERGY(MILLIJOULE) = .95 56

QUENCHING DISTANCE(CM) = .36 7

VOL PERCENT FUEL

2.51 (69)

ABS MIN REF

.23 56

.18 7
```

2-METHYL PENT ANE

| HEAT OF COMB | USTION | ļ | | MOLE (| | | |
|---------------------------------------|------------------------------------|---|----------------------------------|---|--|---------|---------|
| OF LIQUID | | | | .07 | | | |
| | | | | .71 | | | |
| HEAT OF VAPO | RIZATI | | | • | | | |
| | | | | 30 C | | | |
| DENSITY (GRA | | | | | | | |
| REFRACTIVE I SURFACE TENS | | | | | | | |
| AISCOSILA (C | | | | | | | |
| VAPOR PRESSU | | | | | | | |
| P 1 | | | | | | 760 | REF |
| T -60.9 | | | | | | | |
| VAPOR PRESS | A | В | | С | D | MAX ERR | AT P |
| EQUATION 1 | 6.925 | 3 -1178 | .30 2 | 31.03 | | 49 | 100. |
| EQUATION 2 | 63.44 | 6 -564 | 6.3 | -6.88 10. | 3702 | •28 | 4 00 • |
| - C | 0.00 | | | 1 171. 7 | Krr | | |
| | | | 4 20(AY) | (0C) | , KEF | | |
| | MITS | -14. | 4 20(AY) | | | | |
| FLAMMABLE LI | | -14. | 4 20(AY) | VOL PE | PPER | | |
| FLAMMABLE LI | VOL 1. | -14. LOWER PER RE 2 3. | 4 20(AY) F 4,(8)(15 | UF VOL PE) 7.0 | PPER ER REF 3,4 | | |
| FLAMMABLE LI | VOL 1. 1. | -14. LOWER PER RE 2 3, 2 12 | 4 20(AY) F 4,(8)(15 | VOL PE 7.0 | PPER ER REF 3,4 12(A) | | |
| FLAMMABLE LI | VOL 1. 1. | -14. LOWER PER RE 2 3, 2 12 | 4 20(AY) F 4,(8)(15 | UF VOL PE) 7.0 | PPER ER REF 3,4 12(A) | | |
| | VOL 1. 1. | -14. LOWER PER RE 2 3, 2 12 4 13 | 4 20(AY) F 4,(8)(15 | VOL PE VOL PE 7.0 7.0 7.6 | PPER ER REF 3,4 12(A) 13(V) | | |
| AUTOIGNITION DEG C | VOL 1. 1. | -14. LOWER PER RE 2 3, 2 12 4 13 RATURE SEC) RE | 4 20(AY) | VOL PE VOL PE 7.0 7.6 | PPER ER REF 3,4 12(A) 13(V) | | |
| AUTOIGNITION DEG C 306. | VOL 1. 1. TEMPE | -14. LOWER PER RE 2 3. 2 12 4 13 RATURE SEC) RE 3, | 4 20(AY) | VOL PE VOL PE 7.0 7.6 DEG 0 | PPER R REF 3,4 12(A) 13(V) | 33)(8) | |
| | VOL 1. 1. TEMPE | -14. LOWER PER RE 2 3. 2 12 4 13 RATURE SEC) RE 3, | 4 20(AY) | VOL PE VOL PE 7.0 7.6 | PPER R REF 3,4 12(A) 13(V) | 33)(8) | |
| AUTOIGNITION DEG C 306. 307. | VOL 1. 1. TEMPE DELAY(| -14. LOWER PER RE 2 3, 2 12 4 13 RATURE SEC) RE 3, 49 | 4 20(AY) | DEG (275. 284. | PPER 3,4 12(A) 13(V) REF (22)(54(B) | 33)(8) | JEL |

3-METHYLPENTANE

| HEAT OF COMBUSTION | K | CAL/MOLE | CAL/GRA | M REF | |
|--|--------------------|------------|-------------------------|------------|------|
| HEAT OF COMBUSTION OF LIQUID | (NET) | 920.61 | 10683. | 11 | |
| _ (| GROSS | 994.25 | 11537. | 11 | |
| HEAT OF VAPORIZATION | 1(25 C) | | | | |
| 2 | O C REF | 25 C | REF | | |
| DENSITY (GRAM/ML) .6 | 6431 11 | .6597 | 6 11 | | |
| REFRACTIVE INDEX 1. | | | | | |
| SURFACE TENSION 18 | | | | | |
| VISCOSITY (CS) .4 | ,86 (8) | (61) .4653 | 20 | | |
| VAPOR PRESSURE (MM HG | | | | 340 | |
| P 1 10 | | | | | |
| T -59.0 -30.1 | - | | | | |
| VAPOR PRESSURE EQUA | | | | | |
| A | В | C | D | MAX ERR | AT P |
| EQUATION 1 6.9047 EQUATION 2 63.978 | -1178.79 | 229.72 | | .65 | 40. |
| EQUATION 2 63.978 | | -6.95 | 9.9353 | . 74 | 40. |
| FLASH POINT (DEG C) | (CC) REI | F | (OC) REF | | |
| | -31.5 (8 | | | | |
| | -35. 20 | (AY) | | | |
| | | | | | |
| | | | | | |
| FLAMMABLE LIMITS L | OWER | | UPPER | | |
| VUL PE | R REF 8(DD) | ¥U | 7.7 8(D | r .D.) | |
| 1.2 | 81007 | | 1.1 | | |
| | | | | | |
| | | | | | |
| | | | | | |
| AUTOIGNITION TEMPERA | CLOSS | _ | EG CREF | | |
| DEG C DELAYISE | | | | | T 1 |
| | C) REF 49 | | |)(33)(B,F | F) |
| DEG C DELAYISE | | | | | F) |
| DEG C DELAYISE | | | | | F) |
| DEG C DELAY(SE 304. 12.0 | 49 | | 73. (22 |)(33)(B,Fi | |
| DEG C DELAY(SE | 49 1 FLAME 1 2245 | | 73. (22 VOL 2 |)(33)(B,F) | |

2.2-DIMETHYL BUTANE

```
SYNONYMS. NEOHEXANE
FORMULA= C6H14 C/H= 5.107 MW= 86.178 VD= 2.9717

        HEAT OF COMBUSTION
        KCAL/MOLE
        CAL/GRAM
        REF

        OF LIQUID
        (NET)
        917.88
        10651.
        11

        (GROSS)
        991.52
        11505.
        11

        HEAT OF VAPORIZATION(25 C)
        6.62
        76.78
        11

                                                ______
20 C REF 25 C REF
DENSITY (GRAM/ML) .64916 11 .64446 11
REFRACTIVE INDEX 1.36876 11 1.36595 11
SURFACE TENSION 16.30 20 15.81 11
VISCOSITY (CS) .5777 20 .5446 20
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
P 1 10 30 40 100 400 760 REF
T -69.3 -41.5 -19.5 -2.0 31.0 49.7 21
 VAPOR PRESSURE EQUATION COEFFICIENTS
A B C D MAX ERR AT P

EQUATION 1 6.7578 -1082.39 229.47 .18 40.

EQUATION 2 70.231 -5639.8 -8.00 16.1146 .32 40.
 _____
                               (CC) REF (OC) REF
-48. 3.4
-47. 20(AY)
FLASH POINT (DEG C)
                                -31.5 (8)(9)(J)
FLAMMABLE LIMITS LOWER UPPER

VOL PER REF

1.2 3,4,(8)(15) 7.0 3,4

1.2 12(A,CC) 7.0 12(A,CC)
                                   12(A,CC)
                                   13(V)
                                                             7.0 13(V)
                         1.4
AUTOIGNITION TEMPERATURE
       DEG C DELAY(SEC) REF DEG C REF 440. 12.0 49 425. 1,3,4,(22)(30)
MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 35.7 (69) 2254 (55) 2.43 (69) STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) = 1.64 (7)(57) .25 (7)(59)(F) QUENCHING DISTANCE(CM) = .46 7 .18 7
```

2.3-DIMETHYLBUTANE

| | | | | 86.178 | | | |
|----------------------------------|---------|----------------|------------|------------|-----------|---------|------|
| HEAT OF COMBUS OF LIQUID | STION | INETA | KCAL/MO | l l | CAL/GRAP | 1 KEF | |
| or Ligoto | t i | 17E11 | 943.0 | 5 | 11523. | 11 | |
| HEAT OF VAPOR | IZATION | (25 C) | 6.9 | 5 | 80.76 | 11 | |
| | 2 | C R | EF | 25 C | REF | | |
| DENSITY (GRAM | /ML) .6 | 5164 1 | . 1 | .65/02 | 11 | | |
| REFRACTIVE INC SURFACE TENSIO | DEX L. | 3/495 <u>1</u> | 1 | 1.3/231 | 11 | | |
| VISCOSITY (CS) | .5 | 32 (| 8)(61) | 10.07 | 11 | | |
| VAPOR PRESSURE | | | ATURE (DE | G C) DAT | A | | |
| P 1 | 10 | 30 | 40 | 100 | 400 | | |
| T -63.6 -3 | 34.9 | | | | | | |
| VAPOR PRESSUR | RE EQUA | TION COE | FFICIENT | S | | | |
| EQUATION 1 6 | A | В | C | | D | MAX ERR | AT P |
| EQUATION 1 6 | 5.8615 | -1152.3 | 2 231 | .53 | | 47 | 100. |
| EQUATION 2 | | | 6 -6 | | .1736 | .27 | 40. |
| FLASH POINTIDE | EG C) | | REF 3,4 | |) REF | | |
| FLAMMABLE LIMI | (TS) (| DMER | | 111 | PPER | | |
| 1 17 | VOL PE | (REF | | VOL PI | EK KEP | | |
| 1.14 | 1 AI DU | 3.4. | 1811151 | 7.0 | 3.4 | • | |
| | 1.2 | 12(4 | •CC) | 7.0 | 1214 | •CC) | |
| | 1.3 | 13(V |) | 7.0 7.8 | 13 (V |) | |
| AUTC SNITION T | | | | | | | |
| AUIC MILITUM I | - | | | DEG (| REE | | |
| G C DE | | | | | 1,3, | 4 | |
| . G C DE | 12.0 | | | | | | |
| . G C DE 42. 298. | 12.0 | 541B |) | 420. | 24 | | |
| 42. | CM/SEC | 541B | E TEMP(DI | EG K} | VOL P | | JEL |

HEPTANE

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SYNONYMS. HEPTYL HYDRIDE, DIPROPYLMETHANE

        HEAT OF COMBUSTION
        KCAL/MOLE
        CAL/GRAM
        REF

        OF LIQUID
        (NET)
        1067.11
        10649.
        11

        (GROSS)
        1151.27
        11489.
        11

        HEAT OF VAPORIZATION(25 C)
        8.74
        87.17
        11

20 C REF 30 C REF
DENSITY (GRAM/ML) .68376 11 .67525 20
REFRACTIVE INDEX 1.38764 11 1.38250 20
SURFACE TENSION 20.14 (8)(60) 18.34 20 VISCOSITY (CS) .6097 (8)(60) .5586 20
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
    1 10 30 40 100 400 760
-34.0 -2.1 22.3 41.8 78.0 98.4
                                                                                 REF
T
                                                                                  21
 VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D

1342 89 226.56
-----
                                                                     MAX ERR AT P
EQUATION 1 7.0764 -1362.89 226.56 1.05 10.
EQUATION 2 58.012 -6182.5 -5.87 1.5546 -.45 40.
FLASH POINT(DEG C) (CC) REF
-4. 1.4 -1. 4
-1. (8)(9)(J)
FLAMMABLE LIMITS LOWER
                                                     UPPER
               VOL PER REF VOL PER REF
.97 AT 50 C 14(U) 8.5 AT 50 C 14(U)
1.0 (8)(15) 7.0 (8)(15)
1.2 1.3.4.12(A) 6.7 1.3.4.12(A)
                      1.26
                                (17)(77)
AUTOIGNITION TEMPERATURE
      DEG C DELAY(SEC) REF
                                                   DEG C REF
                              54(AX)
      230.
                  34.
                                54(B,AX)
      214.
                    54.
      300.
                                (22)(24)(B)
                                                   233. 1,38
250. 50,74
                                3,4
      223.
                                                               50.74
      247.
                  30.0
                               49
                                                     451.
                                                               40(N)
      259.
                                46
                                FLAME TEMP(DEG K) VOL PERCENT FUEL 2208 (55) 2.26 (69)
MAX FLAME VEL(CM/SEC)
38.6 (69) 2208 (55) 2.26 (67) STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) = 1.1 56 .24 56 QUENCHING DISTANCE(CM) = .38 7 .18 7
                                                           .24 56
.18 7
```

2-METHYLHEXANE

| HEAT OF COME | | | | | MOLE | CAL/GRAM | REF | |
|------------------------------|-----------|-------|--------|-------|-----------|-----------------------------|-----------|------|
| HEAT OF COME OF LIQUID | | (N | ET) | 1065 | . 81 | 10636. | 11 | |
| | | IGRO | SSI | 1149 | .97 | 11476. | 11 | |
| HEAT OF VAPO | ORIZATI | | | | | 83.01 | | |
| | | 20 C | RI | EF | 25 C | REF | | |
| DENSITY (GRA | | | | | | | | |
| REFRACTIVE | | | | | | | | |
| SURFACE TENS VISCOSITY ((| | | | | 18.80 | 1,1 | | |
| VAPOR PRESSI | JR F (MM | HG1-T | EMPER! | TURFU | DEG C) DA | TA | | |
| P 1 | | | | | | | 760 | REF |
| T -40.4 | | | | 14.9 | 34.1 | 69.8 | 90.0 | 21 |
| VAPOR PRESS | SURE EC | DITAU | | FICIE | NTS | | | |
| | | | В | | C | D | MAX ERR | AT P |
| EQUATION 1 EQUATION 2 | 7.028 | 34 -1 | 317.70 | 3 2 | 27.86 | | 1.05 | 10. |
| EQUATION 2 | 57.02 | | | | -5.77 | 1.2158 | 42 | 40. |
| FLASH POINT | DEG CI | (C | C) F | | (0 | C) REF | | |
| FLAMMABLE LI | VOL | | REF | | VOL | UPPER PER REF O 8(DD) | - | |
| AUTOIGNITION | TEMPE | | | | DE G | C REF | | |
| טנט נ | | | | | | | | |

3-METHYLHEXANE

| SYNONYMS. FORMULA= C7 | 116 C/H= 5 | 5.213 Mw× | 100.206 | VD= 3. | 4554 | |
|--------------------------|------------------------------|-------------------------|---------|------------------|---------|-------|
| HEAT OF SOME | BUSTION | KCAL/M | IOLE | CAL/GRAM | REF | |
| OF LIQUID | (NET | 1066. | 39 | 10642. | 11 | |
| | 104022 | , 1150. | 77 | 11402. | 1.4 | |
| HEAT OF VAPO | DRIZATION(25 C |) | | | | |
| | 20 C | REF | 25 C | REF | | |
| DENSITY (GRA | M/ML) .68713 NDEX 1.38864 | 11. | .68295 | 11 | | |
| REPRACTIVE I | SION 19.79 | 11 | 1.38609 | 1 1 | | |
| SURFALE TENS | Sion 19.79 Si .541 | 1911611 | 19.30 | 1.1 | | |
| A12C02111 (C | .51 •541 | | | | | |
| | JRE(MM HG)-TEMF 10 30 | | | | 740 | 0.5.5 |
| | | | | | | |
| 1 -J7•U | -7.8 | 10.7 | | | | |
| VAPOR PRESS | SURE EQUATION (| | | _ | | |
| 50 | A | 3 | C | D | MAX ERR | AT P |
| EQUATION 1 | 6.9547 -129 64.817 -631 | 1.40 22 | 4.40 | 0125 | .59 | 10. |
| EQUALIUN 2 | | | | | ٠١٤. | 400. |
| FLASH POINT(| DEG C) (CC) -414. | REF (8)(9) 20(AY) | (00 | C) REF | | |
| | MITC 10000 | | | | | |
| rlammablt Li | MITS LOWER VOL PER RE | | | JPPER PER REE | | |
| | 1.0 80 | | | |) I | |
| | | | ***** | | | |
| | TEMPERATURE | _ | | | | |
| DEG C | DELAY(SEC) RE | · F | DEG | C REF | | |
| MAX FLAME VE | L(CM/SEC) FL | | | | | JEL |
| MIN IGN ENER | .GY(MILLIJOULE) | | KEF | ABS MIN | REF | |
| QUENCHING DI | | | | | | |

2,2-DIMETHYLPENTANE

| SYNONYMS. Formula= c7h1 | | /H= 5 | .213 | MW= | 100.2 | 06 VD | 3.4 | 554 | |
|----------------------------|---------|-------|------------|--------|-------|----------------|-------|---------|------|
| HEAT OF COMBU | ISTION | | K | CAL/MO | LE | CAL | /GRAM | REF | |
| OF LIQUID | | | | | | | | | |
| HEAT OF VAPOR | | | | | | 114 | | | |
| | | | | | | | | | |
| | | | | | | RE | F | | |
| DENSITY (GRAP | | | | | | | | | |
| REFRACTIVE IN | | | | | | | | | |
| SURFACE TENSI | | | | | 17.55 | 11 | | | |
| VISCOSITY (CS | | | | | | | | | |
| APOR PRESSUR | | | | | | DATA | | | |
| P | 10 | 30 | 4 | •0 | 100 | 40 | כ | | |
| T -49.0 - | 18.7 | | | 5.0 | 23.9 | 59 | . 2 | 79.2 | 21 |
| VAPOR PRESSU | | | | | | | | | |
| TATUR PRESSU | A | | | | | а | | MAX ERR | AT P |
| EQUATION 1 | | -1224 | .77 | 226 | .97 | • | | .21 | 10. |
| EQUATION 2 | 66.707 | -607 | 75.5 | -7 | .32 | 13.45 | 56 | 13 | 400. |
| FLASH POINT(D | EG C) | | REF | = | | | | | |
| FLAMMABLE LIM | ITS L | | | | | UPPEI L PER | | | |
| | 1.0 | 8 (| DD) | | | 7.0 | 8(00) | | |
| AUTOIGNITION | | | | | | | | | |
| DEG C D | FLAYISE | C) RE | ; F | | DI | EG C | REF | | |
| | | | | | | | | | |
| 1AX FLAME VEL 34.8 (6 | | | 2244 | | | | | 3 (73) | JEL |
| IN IGN ENERG | | | - | | | | • | | |

2.3-DIMETHYLPENTANE

| | | KCAL/M | OLE | CAL/GRAM | REF | |
|---|---------|-----------------|---------------------|----------------|-----------------------|---------|
| HEAT OF COMBUSTION OF LIQUID | (NET) | 1064. | 93 | 10627. | 1.1 | |
| | GROSSI | 1149. | 09 | 11467. | 11 | |
| HEAT OF VAPORIZATION | ((25 C) | . 8 | 18 | 81.67 | 11 | |
| 2 | 0 C | REF | 30 C | REF | | |
| DENSITY (GRAM/ML) .6 | 9508 | 11 | .68673 | 20 | | |
| REFRACTIVE INDEX 1. SURFACE TENSION 19 | 39196 | 11 | 1.38696 | 20 | | |
| VISCOSITY (CS) .5 | | | | | | |
| 13003111 (C31 - 3 | | | | | | |
| VAPOR PRESSURE (MM HG | | | | | 74.0 | 0.5.5 |
| P 1 10 T -42.0 -10.3 | 30 | 4U 12 0 | 100 | 400 60.4 | AQ P | 8 E F |
| -76.0 -10.3 | | 13.7 | | | | |
| VAPOR PRESSURE EQUA | TION CO | DEFFICIEN | TS | | WAY 555 | 4. |
| A EQUATION 1 7.0385 | 1334 | 02 22 | | U | MAX ERR | AIP |
| EQUATION 1 7.0385 EQUATION 2 49.967 | -550 | 192 23 2.5 - | 4.74 = 2 | 7402 | 1.27 | 10. |
| QUALLUN 2 49.907 | | | | | | |
| FLASH POINT (DEG C) | (CC) | | 100 |) REF | | |
| FLAMMABLE LIMITS L VOL PE 1.1 1.29 | R REF | .12(A) | VOL P 6.7 8.1 | ER REF 3,12 | (A) (A) 14) (H) | |
| AUTOIGNITION TEMPERA | TURE | | | | | |
| DEC C DELAYISE | | | DEG | | | |
| | 49 | | 337. | 1.3. | 5 | |
| 338. 6.0 | | | | | | |
| | | | | | ERCENT FL | JEL |

2.4-DIMETHYLPENTANE

| FORMULA= C7 | = | | 5.21 | 3 MW= | | | 3.4554 | |
|---|-----------|------------|--------|---------|-----------|--------|----------|-------|
| HEAT OF COM | BUSTION | u . | - | CAL /M | OL F | CAL/GE | AM REE | |
| F LIQUID | | INE | ET) | 1064. | 57 | 10624 | . 11 | |
| | | (GROS | (22 | 1148. | 73 | 11464 | . 11 | |
| HEAT UP VAP | OKIZATI | 1 UN (2 5 | CI | /. | 80 | /6.9 | 4 11 | |
| | | 30 6 | 0.54 | - | 30.0 | 0.5.5 | | |
| DENSITY (GR | AM/ML) | .67270 | 11 | | .66393 | 20 | | |
| REFRACTIVE | INDEX | 1.3814 | 5 11 | | 1.37617 | 7 20 | | |
| SURFACE TEN | SION | 18.15 | (8) | (60) | 17.17 | 20 | | |
| DENSITY (GR REFRACTIVE SURFACE TEN VISCOSITY (| CS) | •537 | (8) | (61) | .5351 | 20 | | |
| APOR PRESS | URELMM | HG)-TE | MPERAT | TURE (D | EG C) DA | ATA | | |
| P 1 | 10 | 30 |) | 40 | 100 | 400 | 760 | REF |
| T -48.0 | -17.1 | | | 6.5 | 25.4 | 60.6 | 80.5 | 21 |
| VAPOR PRES | SURE FO | DUATION | COFFE | ICIEN | TS | | | |
| | _ A | | 8 | | C | D | MAX ER | RATP |
| EQUATION 1 | 7.036 | 58 -13 | 302.52 | 23 | 3.06 | | 1.2 | 7 10. |
| EQUATION 1 | 49.47 | 70 - | 5430.9 | | 4.68 - | 2.9662 | 5 | 3 40. |
| LASH POINT | | 100 | :) RF | : F | ((| | | |
| | | -12 | 2. 3. | 6 | - 1 | 2. 4 | | |
| | | -24 | 20 | (AY) | | | | |
| | | | | | | | | |
| FLAMMABLE L | IMITC | 1 AUE 8 | | | | 110050 | | |
| TANNADEL L | _ | | | | | | FF | |
| | 1. | 1 | 4 | | VOL | 7 4 | L.V. | |
| | • • | • | - | | J. | | | |
| | | | | | | | | |
| | | | | | | | | |
| AUTOIGNITIO | | | | | 050 | | - | |
| DEG C | DELAY | 2FC) | REF | | DEG | C KE | F | |
| 338. | | | • | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| IAX FLAME VI | | EC) | | | | | | |
| 35.7 | (69) | | | (55) | | | 2.17 (69 |) |
| | | | | ICH F | REF | ABS M | IN REF | |
| IIN IGN ENEF | | | E)= | | | | | |
| UENCHING DI | | | | | | | | |

3.3-DIMETHYLPENTANE

| SYNONYMS. FORMULA= C7H16 | | | | | | |
|------------------------------------|-------------------------|---------------|--------------------|-----------------|-----------|---------|
| HEAT OF COMBUST OF LIQUID | ION | KCAL/M | OLE | CAL/GRAM | REF | |
| OF LIQUID | (NET) | 1064. | 67 | 10625. | 11 | |
| WEAT OF WARDEN | (GROSS) | 1148. | 83 | 11465. 78.76 | 11 | |
| HEAT OF VAPORIZ | ALIUNIZO CI | | | | | |
| | 20 C | REE | 25 C | RFF | | |
| DENSITY (GRAM/M REFRACTIVE INDE | L) .69327 | 11: | .68908 | 11 | | |
| REFRACTIVE INDE | X 1.39092 | 11 | 1.38842 | 11 | | |
| SURFACE TENSION | 19.59 | 20 | 19.10 | 11 | | |
| VISCOSITY (CS) | | (8)(61) | | | | |
| VAPOR PRESSURE(| | ERATURE(D | | | | |
| P 1 1 | .0 30 | 40 | 100 | 400 | 760 | REF |
| T -45.9 -14 | .4 | 9.9 | 29.3 | 65.5 | 86.1 | 21 |
| | | | | | | |
| VAPOR PRESSURE | EQUATION C | OEFFICIEN | TS | 0 | MAY COD | A T O |
| EQUATION 1 6. | 9450 -1301 | 44 22 | 2 76 | D | MAX EKK | AIP |
| EQUALIUN I D. | 7070 -1301 | •07 23 | 6 • 1 5 4 • 0 0 | 0533 | - 26 | 10. |
| EQUALION & DU | | | | •0555 | 20 | 70. |
| FLASH POINT(DEG | (CC) -18. | REF 20(AY) | (0 (|) REF | | |
| FLAMMABLE LIMIT | S LOWER | | (| | | |
| ٧ | OL PER RE | | | | | |
| | 1.0 80 | ND) | 7.0 | 8 (DD) |) | |
| AUTOIGNITION TE DEG C DEL | MPERATURE AY(SEC) RE | | DEG | C REF | | |
| MAX FLAME VEL(C 35.3 (63) | | AME TEMP(| DEG K) | | ERCENT FL | JEL |

3-ETHYLPENTANE

| SYNONYMS. Formula= C7H16 | C/H= | 5.213 MW: | 100.206 | VD= 3 | 4554 | |
|----------------------------------|----------|---------------|------------|----------|-----------|------|
| HEAT OF COMBUSTIO | N | KCAL/ | 10LE | CAL/GRAP | 1 REF | |
| OF LIQUID | INET | 1066 | . 97 | 10648. | 11 | |
| | | 1151. | | | | |
| HEAT OF VAPORIZAT | 10N125 C |) 8. | . 42 | 84.02 | 11 | |
| | | REF | | | | |
| DENSITY (GRAM/ML) | | | | | | |
| REFRACTIVE INDEX SURFACE TENSION | | | | | | |
| VISCOSITY (CS) | | | | 11 | | |
| VAPOR PRESSUREIMM | HG)-TEM | PERATURE ((| DEG C) DAT | 'A | | |
| P 1 10 | | | | | 760 | REF |
| T -37.8 -6.8 | | | 36.9 | 73.0 | 93.5 | 21 |
| VAPOR PRESSURE E | QUATION | COEFFICIEN | NTS | | | |
| A EQUATION 1 6.87 | 1 | В | C | D | MAX ERR | AT P |
| EQUATION 1 6.87 | 94 -125 | 3.45 22 | 20.00 | | 15 | 400. |
| QUATION 2 76.2 | 07 -68 | 12.4 - | -8.65 18 | .7585 | 29 | 400. |
| FLASH POINTIDEG C | | REF 20(AY) | |) REF | | |
| FLAMMABLE LIMITS | | | U | | | |
| VOL. | PER RI | E F | | | : | |
| | | (DD) | | | | |
| AUTOIGNITION TEMP | ERATURE | | | | | |
| DEG C DELAY | (SEC) RE | EF: | DEG | C REF | | |
| | | | 0.00 | | | |
| MAX FLAME VEL(CM/ | SECI FL | .AME TEMP(| UEG K) | VOL P | ERCENT FL | JEL |
| THE TENTE TEETON | | | | | | |
| | | STOICH | REF | ABS MIN | REF | |

2.2.3-TRIMETHYLBUTANE

| FORMULA= C7 | | | | | | | | |
|---|---------------------------------------|-------------------------------------|---------------------------|---------------|---------------------|----------------|------------------|----------------|
| HEAT OF COM | BUSTION | 1 4 5 1 | | KCAL/M | OLE | CAL/G | RAM REF | |
| or Ligoto | | (GROS | 55) | 1148. | 1 I 2 7 | 1145 | 9. 11 9. 11 | |
| LAI OF TAP | OUITALI | UNIZ | C / | | 00 | 70. | ** | |
| | | | | | | REF | | |
| DENSITY (GR | AM/ML) | -69011 | 11 | | .68588 | 11 | | |
| REFRACTIVE | INDEX | 1.3894 | 14 11 | | 1.3869 | 2 11 | | |
| DENSITY (GRA REFRACTIVE SURFACE TENS /ISCOSITY (| CS) | .868 | (8 |)(61) | 18.20 | 11 | | |
| APOR PRESSI | | | | | | | | |
| 1 | 10 | 3.0 |) | 40 | 100 | 400 | 760 | |
| -49.3 | -18.8 | | . 2 | | | | 80.9 | |
| VAPOR PRES | SURE EQ | HOLTAU | COEF | FICIEN | TS | | | |
| EQUATION 1 EQUATION 2 | A | | В | (| C | D | MAX ER | R AT P |
| QUATION 1 | 6.787 | 0 -11 | 98.36 | 22 | 5.87 | 22 7257 | -1 | 5 100. |
| QUALLUN 2 | /3.5/ | |) | | B.4U | 23.1251 | |)) 30 . |
| | | | | | | | | |
| | | -22 | ?• 2(| D(AY) | | | | |
| LAMMABLE L | IMITS | | | | | UPPER | | |
| LAMMABLE L | VOL | LOWER | REF | | VOL | UPPER PER F | | |
| LAMMABLE L | VOL | LOWER | | | VOL | | | |
| | VOL 1. | LOWER PER O | REF 8(DD) | | VOL | PER F | | |
| UTOIGNITION DEG C | VOL l. N TEMPE DELAY(| LOWER PER O RATURE SEC) | REF 8(DD) | | VOL 7. | PER F | (DD) | |
| UTOIGNITIO | VOL 1. | LOWER PER O RATURE SEC) | REF 8(DD) | | VOL 7. | PER 6 | (DD) | |
| UTOIGNITION DEG C | VOL 1. N TEMPE DELAY(18. | LOWER PER O RATURE SEC) | REF 8(DD) REF 49 | TEMP (C | VOL 7. DEG K) | PER 6 | PERCENT 2.15 (69 | |
| UTOIGNITION DEG C 454. | VOL 1. N TEMPE DELAY(18. | LOWER PER O RATURE SEC) | REF 8(DD) REF 49 | TEMP (C) (55) | VOL 7. DEG K) | PER F | PERCENT 2.15 (69 | |

OCTANE

```
SYNONYMS. OCTYL HYDRIDE

        HEAT OF COMBUSTION
        KCAL/MOLE
        CAL/GRAM
        REF

        OF LIQUID
        (NET)
        1212.85
        10617.
        11

        (GROSS)
        1307.53
        11446.
        11

        HEAT OF VAPORIZATION(25 C)
        9.92
        86.80
        11

20 C REF 25 C REF 37.78 C REF DENSITY (GRAM/ML) .70252 11 .69849 11 REFRACTIVE INDEX 1.39743 11 1.39505 11
SURFACE TENSION 21.62 (8)(60) 21.26 11 VISCOSITY (CS) .7758 (8)(60)
                                                                         .6476 11
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
P 1 10 30 40 100 400 760 REF T -14.0 19.2 45.1 65.7 104.0 125.6 21
VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P

EQUATION 1 6.9649 -1378.10 211.86 .15 10.

EQUATION 2 82.227 -7824.5 -9.37 21.6945 -.19 400.
          ------
FLASH POINT(DEG C) (CC) REF (OC) REF 15.5 1 22. (8)(9)(L) 13.5 3,4
FLAMMABLE LIMITS LOWER UPPER

VOL PER REF

.84 AT 80 C 14(U) 7.0 AT 80 C 14(U)

.8 4 3.2 1,4
                               (8)(15)
                      .96
                      1.0
                               1,3,12(A)
                               (17)(77)
AUTOIGNITION TEMPERATURE
      DEG C DELAY(SEC) REF
                                                    DEG C REF
220. 3.4
458. 40(N)
                            1
49
54(AX)
       232.
       240.
                    54.0
       218.
                   70. 54(AX)
107. 54(B,AX)
       208.
MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL
                                     STOICH REF ABS MIN REF
MIN IGN ENERGY(MILLIJOULE) =
QUENCHING DISTANCE (CM) =
```

2-METHYLHEPTANE

| | | | | MOLE | | | |
|-----------------------------------|------------------------------|--------------------------------------|-----------------|---------------------|-------------|----------------------|--------------------|
| OF LIQUID | | (NET) | 1211 | .60 | 10606. | 11 | |
| | | (GROSS) | 1306 | .28 | 11435. | 11 | |
| HEAT OF VAPO | | | | .48 | | | |
| | | 20 C | REF | 25 C | REF | | |
| DENSITY (GRA | M/ML) | .69792 | 11 | .69392 | 11 | | |
| REFRACTIVE I | NUEX | 1.39494 | 11 | 1.39257 | 11 | | |
| SURFACE TENS VISCOSITY (C | 5) | .744 | (8)(61) | 20.14 | 11 | | |
| VAPOR PRESSU | | | | | TA | | |
| P 1 | | | | | | 760 | REF |
| T -21.0 | | | | | | | |
| VAPOR PRESS EQUATION 1 EQUATION 2 | 7.055 62.98 | 8 55 -1415 35 -673 | .55 22 9.7 - | C 21.60 -6.56 | D 5.0460 | MAX ERR .82 27 | AT P 10. 40. |
| | | | | | | | |
| | | | | | | | |
| FLAMMABLE LI | | | | (| | | |
| FLAMMABLE LI | VOL | | F | (VOL / | | | |
| | VOL 0. | PER RE. 98 (8 | F | | | | |
| AUTOIGNITION | VOL O. TEMPE | PER RE | F)(15) | V 0L 1 | | | |
| AUTOIGNITION DEG C | VOL O. TEMPE DELAY(| PER RE 98 (8 RATURE SEC) RE | F)(15) | VOL 1 | PER REF | | JEL |
| FLAMMABLE LI | VOL O. TEMPE DELAY(| PER RE 98 (8 RATURE SEC) RE | F (15) | VOL 1 | PER REF | ERCENT FL | JEL |

3-METHYLHEPTANE

| SYNONYMS. FORMULA= CBH18 | C/H= 5.296 MM | ı= 114.233 | VD= 3 | .9391 | |
|---|---|------------------------------------|------------------|----------------------|--------------------|
| HEAT OF COMBUSTION OF LIQUID | (NET) 1212 | 2.24 | 10612. | 11 | |
| HEAT OF VAPORIZATIO | | .52 | 83.34 | 11 | |
| DENSITY (GRAM/ML) . REFRACTIVE INDEX 1 SURFACE TENSION 2 VISCOSITY (CS) | 20 C REF 370582 11 1.39848 11 21.17 20 | 25 C .70175 1.39610 20.70 | REF 11 11 | | |
| VAPOR PRESSURE(MM H P 1 10 T -19.8 13.3 | 30 40 38.9 | 100 | 400 97.4 | 118.9 | 21 |
| VAPOR PRESSURE EQUATION 1 6.9816 EQUATION 2 72.249 | UATION COEFFICIE B 1377.47 2 7184.1 | NTS C 17.08 -7.93 13 | D 3.1532 | MAX ERR .57 27 | AT P 10. 40. |
| FLASH POINT(DEG C) | | 100 | | | |
| | LOWER PER REF PB 8(DD) | | JPPER PER REF | | |
| AUTOIGNITION TEMPER DEG C DELAY(S | | DEG | C REF | | |
| MAX FLAME VELICM/SE | | | | | JEL |
| MIN IGN ENERGY(MILL QUENCHING DISTANCE(| IJOULE) = | REF | ABS MIN | REF | |

4-METHYL HEPTANE

| SYNONYMS. FORMULA= C8H18 | C/H= 5 | .296 MW= | 114.233 | V D= 3. | 9391 | |
|---|--------------------------|-----------|---------|------------------|---------|-------|
| HEAT OF COMBUSTION | | KCAL/H | OL E | CAL/GRAP | I REF | |
| OF 1 10010 | (NET) | 1212. | 41 | 10614. | 11 | |
| J. 214315 | (GROSS) | 1307. | 09 | 11442. | 11 | |
| HEAT OF COMBUSTION OF LIQUID HEAT OF VAPORIZATION | N(25 C) | 9. | 48 | 83.01 | 11 | |
| | 20 C | RFF | 25 C | RFF | | |
| DENSITY (GRAM/ML) . REFRACTIVE INDEX 1 | 70463 | 11 | .70055 | 11 | | |
| REFRACTIVE INDEX 1 | .39792 | 11 | 1.39553 | 11 | | |
| SURFACE TENSION 2 | 1.00 | 20 | 20.54 | 11 | | |
| VISCOSITY (CS) | 678 | (8)(61) | | | | |
| VAPOR PRESSURE (MM H | | | | | | 0.5.5 |
| P 1 10 | 30 | 40 | 100 | 400 | 760 | REF |
| T -20.4 12.4 | | 38.0 | 58.3 | 96.3 | 11/./ | 21 |
| VAPOR PRESSURE EQU | ATTON CO | DEFETCIEN | TS | | | |
| EQUATION 1 6.9406 | В | | C | D | MAX ERR | AT P |
| EQUATION 1 6.9406 | -1350 | . 37 21 | 4.95 | | 30 | 100. |
| EQUATION 2 77.620 | -740 | 5.0 - | 8.73 | 8.0668 | .14 | 40. |
| FLASH POINT(DEG C) | (CC) | | (0) | C) REF | | |
| | LOWER ER REF B 8(C | • | | JPPER PER REF | | |
| AUTOIGNITION TEMPERA DEG C DELAYISI | | : | DEG | C REF | | |
| MAX FLAME VEL(CM/SEC | (JOULE) = | STOICH | | VOL P | | JEL |

2,2-DIMETHYLHEXANE

| | BUSTION | 4 | KCAL/M | OLE | CAL/GRAM | REF | |
|---------------------------|----------|--------------------|-------------|------------|-----------|---------|------|
| OF LIQUID | | | | 96 | | | |
| | | | | 64 | | | |
| HEAT OF VAP | | | | 91 | | | |
| | | 20 C | REF | 25 C | REF | | |
| DENSITY (GR | | | | | | | |
| REFRACTIVE SURFACE TEN | | | | | | | |
| VISCOSITY (| | 14.60 | 20 | 19.14 | 11 | | |
| VAPOR PRESS | URE (MM | HG)-TEHPI | RATURE (D | EG C) DAT | | | |
| P 1 | 10 | 30 | 40 | 100 | 400 | 760 | REF |
| T -29.7 | 3.1 | | | 48.2 | | | 21 |
| VAPOR PRES | | | DEFFICIEN | TS | | | |
| | A | В | | C | D | MAX ERR | AT P |
| EQUATION 1 EQUATION 2 | 7.031 | 4 -1380 | 45 22 | 5.98 | | 1.24 | 10. |
| EQUATION 2 | 53.71 | | | | .1481 | .31 | 10. |
| FLASH POINT | (DEG C) | (CC) | | 100 |) REF | | |
| FLAMMABLE L | VOL | | | U VOL P | _ | | |
| | | | | | | | |
| AUTOIGNITIO DEG C | | RATURE SEC) REF | . : | DE G | C REF | | |

2.3-DIMETHYLHEXANE

| SYNONYMS. FORMULA= C8H18 C/ | /H= 5. | .296 M | w= 114.233 | VD= 3 | .9391 | |
|--|------------|----------|------------|-----------------|-------|---------|
| HEAT OF COMBUSTION | | KCAL | /MOLE | CAL/GRA | M REF | |
| OF LIQUID | (NET) | 121 | 2.18 | 10612. | 11 | |
| ((| GROSS) | 130 | 6.86 | 11440. | 11 | |
| HEAT OF VAPORIZATION | 25 C) | | 9.27 | 81.16 | | |
| DENSITY (GRAM/ML) .7 |) C | REF | 25 C | REF | | |
| DENSITY (GRAM/ML) .71 | 214 | 11 | .70809 | 11 | | |
| REFRACTIVE INDEX 1.4 | 0113 | 11 | 1.39880 | 11 | | |
| SURFACE TENSION 20. VISCOSITY (CS) | | 20 | | 11 | | |
| VAPOR PRESSURE(MM HG) | -TEMPE | | | | | |
| P 1 10 | 30 | 40 | 100 | 400 | 760 | REF |
| T -23.0 9.9 | | 35.6 | 56.0 | 94.1 | 115.6 | 21 |
| VAPOR PRESSURE EQUAT | ION CO | EFFICI | | | | |
| A EQUATION 1 6.9386 | -1354. | 19 | 218.16 | | 19 | 100. |
| EQUATION 2 73.657 | -7123 | . 9 | -8.18 1 | 7.5210 | 14 | 10. |
| FLASH POINT(DEG C) | | REF 1 | (0) | | | |
| FLAMMABLE LIMITS LO VOL PER 0.98 | | | | JPPER PER RE | | |
| AUTOIGNITION TEMPERAT DEG C DELAYISEC 438. | _ | | | C REF | | |
| MAX FLAME VEL(CM/SEC) | | | P(DEG K) | | | JEL |

2.4-DIMETHYLHEXANE

| | | | NCAL / | MOLE | LAL/GRAP | NEF | |
|----------------|------------|---------|----------|-----------|----------|-----------|------|
| OF LIQUID | | (NET) | 1211 | .12 | 10602. | 11 | |
| | | (GROSS) | 1305 | .80 | 11431. | 11 | |
| HEAT OF VAPOR | IZATIO | N(25 C) | | •03 | 79.01 | 11 | |
| | | 20 C | REF | 25 C | REF | | |
| DENSITY IGRAM | /ML) . | 70036 | 11 | .69620 | 11 | | |
| REFRACTIVE IN | DEX 1 | .39534 | 11 | 1.39291 | 11 | | |
| SURFACE TENSI | | 20.05 | 20 | 19.59 | 11 | | |
| VAPOR PRESSUR | | G)-TEMP | | DEG C) DA | | | |
| P 1 | 10 | 30 | 40 | 100 | 400 | 760 | REF |
| 7 -26.9 | 5.2 | | 30.5 | 50.6 | 88.2 | 109.4 | 21 |
| VAPOR PRESSU | RE FOU | ATION C | OFFFICIE | | | | |
| EQUATION 1 | A | В | | C | D | MAX ERR | AT P |
| QUATION 1 | 6.8605 | -1292 | .13 2 | 15.25 | | 19 | 10. |
| EQUATION 2 | 82.990 | -741 | 5.5 | -9.60 20 | 5.0992 | 30 | 10. |
| FLASH POINT (D | | (CC) | RFF | (0) | | | |
| | _ | 10. | 1 | 10. | 3,4 | | |
| | | -2. | 20(AY) | | | | |
| | | | | | | | |
| LAMMABLE LIM | | LOWER | | | IPPER | | |
| | | | | VOL P | | | |
| | | 8 811 | | | | | |
| | | | | | | | |
| | | | | | | | |
| UTOIGNITION | | | | | | | |
| DEG C D | ELAYIS | EC) REI | F | DEG | C REF | | |
| 438. | | 4 | | | | | |
| | | | | | | | |
| | (CM/SE | C) FL/ | AME TEMP | DEG K) | VOL P | ERCENT FU | JEL |
| AX FLAME VEL | | | | | | | |
| MAX FLAME VEL | | | STOICH | REF | ARS MIN | RFF | |

2.5-DIMETHYLHEXANE

| HEAT OF COM | BUSTION | | KCAL/M | | CAL/GRAP | REF | |
|--|------------------|----------------------------|---------------|-----------|-----------|-----------|--------|
| OF LIQUID | | (NET) | 1210. | 32 | 10595. | 11 | |
| HEAT OF COM OF LIQUID | | (GROSS) | 1305. | 00 | 11424. | 11 | |
| HEAT OF VAP | OKIZALI | ON(25 C) | 9. | 05 | 79.21 | 1.1 | |
| | | 20 C | DEC | 30 C | DEC | | |
| DENSITY (GR REFRACTIVE SURFACE TEN | AM/ML) | 69354 | 11 | .68513 | 20 | | |
| REFRACTIVE | INDEX | 1.39246 | 11 | 1.38740 | 20 | | |
| SURFACE TEN | ISTON | 19.73 | (8)(60) | 18.82 | 20 | | |
| VISCOSITY (| CS) | .699 | (0)(01) | .6305 | 20 | | |
| VAPOR PRESS | | | | | | | |
| P 1 | 10 | 30 | 40 | 100 | 400 | 760 | KEF |
| T -26.7 | 5. 3 | | 3U• 4 | ッひ・ラ | 67.9 | 104.1 | ∠1 |
| VADOR PRES | SUPE FO | HATTON CO | DEFETCIEN | T C | | | |
| EQUATION 1 EQUATION 2 | A | 8 | | C | D | MAX ERR | AT P |
| EQUATION 1 | 6.853 | 4 -1283 | 37 21 | 3.96 | | 14 | 40. |
| EQUATION 2 | 83.52 | TU - 7459 | 9.i - | y.61 24 | •1034 | 29 | 400. |
| | | | | | | | |
| | (DEG C) | (CC) 1. | REF 20(AY) | (00 |) REF | | |
| | IMITS VOL | 1. | 20(AY) | U | PPER | - | |
| FLAMMABLE L | IMITS VOL O. | LOWER PER REF 98 8(0 | 20(AY) | VOL P | PPER | | |

3.3-DIMETHYL HEXANE

| SYNONYMS. FORMULA= CBH18 | C/H= 5 | .296 Mw= 114 | .233 VD= 3 | .9391 | |
|---|---|--|----------------------|-------|-----|
| HEAT OF COMBUS | (GROSS) | 1305.68 | 11430. | 11 | |
| HEAT OF VAPOR | | 8.97 | | | |
| DENSITY (GRAMA REFRACTIVE INC SURFACE TENSION VISCOSITY (CS) | ML) .71000 DEX 1.40009 DN 20.63 | REF 25 11 .70 11 1.3 20 20. | 596 11 9782 11 | | |
| VAPOR PRESSURE P 1 T -25.8 | 10 30 6.1 | 40 10 31.7 52 | 0 400 .5 90.4 | 112.0 | 21 |
| VAPOR PRESSUR EQUATION 1 6 EQUATION 2 10 | LE EQUATION C A B 0.7202 -1236 04.398 -832 | 0EFFICIENTS C .50 209.85 5.8 -12.84 | D 54.4458 | | |
| FLASH POINTIDE | (CC) | REF | (OC) REF | | |
| FLAMMABLE LIMI | TS LOWER VOL PER REI 0.98 8() | F | UPPER VOL PER REI | : | |
| AUTOIGNITION T DEG C DE | EMPERATURE (LAY(SEC) RE) | F | DEG C REF | | |
| MAX FLAME VEL (| CM/SEC) FL | | | | JEL |
| MIN IGN ENERGY OUENCHING DIST | | STOICH REF | ABS MIN | I REF | |

3.4-DIMETHYLHEXANE

| HEAT OF COM OF LIQUID | | | | .36 | | | |
|--------------------------|-----------|-------------------|---------------|-------------|------------------|-----------|------|
| OF LIGOID | | | | .04 | | | |
| HEAT OF VAP | | | | | | | |
| | | | | | | | |
| | | | | 25 C | | | |
| DENSITY IGR | | | | | | | |
| FEFRACTIVE | INDEX | 1.40406 | 11 | 1.40180 | 11 | | |
| SURFACE TEN | | 21.04 | 20 | 21.18 | 11 | | |
| VAPOR PRESS | UR E (MM | HG)-TEMP | FRATURE | DEG C) DA | TA | | |
| P 1 | | | | | | 760 | REF |
| T -22.1 | | | | | | | |
| VAPOR PRES | | | | | | | |
| | | | | С | D | MAX ERR | AT P |
| EQUATION 1 | | | | | | -68 | |
| EQUATION 2 | 64.34 | -673 | 8.0 | -6.79 | 7.8702 | 23 | 40. |
| FLASH POINT | (DEG C | | REF 20(AY) | | C) REF | | |
| FLAMMABLE L | V OL | LOWER PER RE | F | V 0L | UPPER PER REF | : | |
| AUTOIGNITION DEG C | | RATURE SEC) RE | F | DEG | C REF | | |
| MAX FLAME VE | EL (CM/S | SEC) FL | AME TEMP | (DEG K) | VOL P | ERCENT FL | JEL |
| | | | STOICH | REF | ABS MIN | REF | |

3-ETHYLHEXANE

| MEAT OF COME | 101120 | . | , | CAL/MOLE | C.A | L/GRAM | REF | |
|---------------------------------------|--------------|-----------|--------------|----------|---------|--------|---------------------------------------|------|
| OF LIQUID | | (N | ET) | 1212.71 | 1 | 0616. | 11 | |
| LAT OF VAPO | NO 1 7 A T 1 | | | 1307.39 | | 82.94 | | |
| | | | | | | | | |
| | | 3.0 C | REI | 2. | C F | EF | | |
| DENSITY (GRA | M/ML) | .71350 | 9 11 | . 70 | 948 1 | 1 | | |
| SURFACE TENS | TON | 21,51 | 20 | 1 + 2 | UP 1 | 1 | | |
| ISCOSITY (C | (5.) | | 20 | 41. | | • | | |
| APOR PRESSU | REIMM | HG) - TE | | | | | | |
| 1 | | | | | | | | |
| -20.0 | | | • | 38.5 58 | 1.9 | 7.0 | 118.5 | 21 |
| VAPOR PRESS | URE EC | OITAU | COEFF | | | | | |
| EQUATION 1 | | | | | |) | MAX ERR | AT P |
| EQUATION 1 | 6.917 | 76 -13 | 342.37 | 214.05 | | | 09 | 100. |
| QUATION 2 | | | | -9.19 | 21.9 | 950 | 21 | 10. |
| FLASH POINT (| DEG C1 | | C) RE | | (OC) | REF | | |
| | | 10458 | | | UPP | | | |
| LAMMARIE I | MITC | | | | | | | |
| FLAMMABLE LI | VOL | PER 98 | REF | | VOL PER | | | |
| FLAMMABLE LI AUTOIGNITION DEG C | VOL O. | PER 98 | REF 8(DD) | | | REF | • • • • • • • • • • • • • • • • • • • | |

2,2,3-TRIMETHYLPENTANE

| SYNONYMS. FORMULA= C8H18 | C/H= 5 | .296 MW= | 114.233 | VD= 3. | 9391 | |
|---|------------------------|------------|---------|----------|-----------|------|
| HEAT OF COMBUST | LON | KCAL/M | 01 F | CAL/GRAM | RFF | |
| OF LIQUID | (NET) | 1211. | 15 | 10602. | 11 | |
| | (GROSS) | 1305. | 83 | 11431. | 11 | |
| HEAT OF COMBUST OF LIQUID HEAT OF VAPORIZ | | | | | 11 | |
| | 20 C | REF | 25 C | REF | | |
| DENSITY (GRAM/N REFRACTIVE INDE | L) -71602 | 11 | .71207 | 11 | | |
| REFRACTIVE INDE | X 1.40295 | 11 | 1.40066 | 11 | | |
| SURFACE TENSION | 20.67 | 20 | 20.22 | 11 | | |
| SURFACE TENSION VISCOSITY (CS) | .865 | (8)(61) | | | | |
| VAPOR PRESSURE | MM HG)-TEMP | ERATURE (D | | | | |
| P 1 1 | .0 30 | 40 | 100 | 400 | 760 | REF |
| 1 -29.0 3 | .9 | 29.5 | 49.9 | 88.2 | 109.8 | 21 |
| VAPOR PRESSURE | EQUATION C | OFFEICIEN | TS | | | |
| EQUATION 1 6. EQUATION 2 65 | A B | | C | D | MAX ERR | AT P |
| EQUATION 1 6. | 8953 -1332 | .99 22 | 2.30 | | .54 | 10. |
| EQUATION 2 65 | .966 -657 | 8.9 - | 7.10 11 | .9599 | .12 | 400. |
| FLASH POINT (DEG | (CC) | REF | (00 |) REF | | |
| FLAMMABLE LIMIT | S LOWER | | U | IPPER | | |
| V | OL PER RE | F | VOL P | ER REF | | |
| AUTOIGNITION TE | | | | ~ | | |
| | AY(SEC) REI 24.0 49 | F | DEG | C REF | | |
| MAX FLAME VELIC | M/SEC) FL | AME TEMP() | DEG K) | VOL P | ERCENT FU | EL |
| MIN IGN ENERGY(QUENCHING DISTA | | STOICH I | REF | ABS MIN | REF | |

2.2.4-TRIMETHYLPENTANE

| HEAT OF COM OF LIQUID | BUSITON | KCAI | /MOLE | | DLL | |
|--------------------------|------------------------|-------------|--------------|------------|---|------|
| | | META 13 | 10.41 | LAL/UNAN | 1 i | |
| | 1.00 | NE : 1 12 | 05.29 | 10270. | 11 | |
| TEAT OF VAP | ORIZATION(2 | 5 C) | 8.40 | 73.50 | 11 | |
| | 20 | | 25 C | | | REF |
| ENSITY (GR | AM/ML) .691 | | | | | |
| | INDEX 1.39 | | | | | |
| | SION 18.7 | | | | | |
| /ISCOSITY (| CS) .725 | 9 20 | | | .5958 | 20 |
| | URE(MM HG)- | | E (DEG C) DA | TA | | |
| 1 | 10 | 30 40 | 100 | 400 | 760 | REF |
| -36.5 | -4.3 | 20. | 7 40.7 | 78.0 | 99.2 | 21 |
| VAPOR PRES | SURE EQUATI | ON COEFFICE | IENTS | | | |
| | A | 8 | C | D | MAX ERR | AT P |
| QUATION 1 | 6.9092 - 61.270 | 1309.92 | 226.07 | | .59 | 10. |
| EQUATION 2 | 61.270 | -6172.7 | -6.44 | 8.3540 | 18 | 40. |
| | (DEG C) | | | C) REF | | |
| | - | 12. 3,4 | | | | |
| | | | 4 a : | 5 (8)(| 9)(L) | |
| | IMITS LOW | | | JPPER | من منت منت الله الله الله الله الله الله الله الل | |
| CANNAULL L | VOL PE. .85 AT 50 C | REE | voi i | PER REF | | |
| | -85 AT 50 C | 14(11) | 5.95 AT 50 | 1411 | • | |
| | 1.1 | 3.4.12(A) |) 6.0 | 3.4 | • | |
| | 1.15 | (17)(77) | | | | |
| | | | | | | |
| AUTOIGNITIO | N TEMPERATU | | | | | |
| DEG C | DELAY(SEC) | | DEG | C REF | | |
| 434. | | 54(AX) | | | | |
| | 15. | 54(B,AX) | 12.3 | | | |
| 515. | | 50 | 561. | | } | |
| 447. | 12.0 | 49 | 467. | | | |
| 529. | | 46 | 518. | 51 | | |
| AY FLAME V | EL(CM/SEC) | FLAME TEN | | VOI PI | ERCENT FL | |
| | | | (7) | | 90 (73) | |
| 34.6 | | | | | | |
| 34.6 | | STOICH | 1 REF | ABS MIN | REF | |
| | RGY(M1LLIJO | | | | (7)(58) | |

2,3,3-TRIMETHYLPENTANE

| HEAT OF COMB | USTION | I | | KCAL | MOLE | CAL/GRA | M REF | |
|------------------------------|-------------------|-------------------|------------------------|---------|-----------|------------------|---------|------|
| HEAT OF COMB | | (NI | ETI | 121 | 1.96 | 10610. | 11 | |
| | | (GRO | SS) | 1306 | 5.64 | 11438. | 1 1 | |
| HEAT OF VAPO | RIZATI | ON125 | C) | | | 77.87 | 11 | |
| DENSITY (GRA | | | | | | | | |
| DENSITY (GRA | M/ML) | .7261 | 9 | 11 | .72232 | 11 | | |
| REFRACTIVE 1 | | | | | | | | |
| SUPFACE TENS VISCOSITY (C | | | | 20 | 21.10 | 11 | | |
| VAPOR PRESSU | RE(MM | HG)-T | EMPE | RATURE | DEG C) DA | ATA | | |
| P 1 | 10 | 30 | 5 | 40 | 100 | 400 | 760 | REF |
| 7 -25.8 | 6.9 | | | 33.0 | 53.8 | 92.7 | 114.8 | 21 |
| VAPOR PRESS | URE EQ | UATIO | v C0 | EFFICIE | NTS | | | |
| | A | | 8 | | C | D | MAX ERR | AT P |
| FOLLATION 1 | 6.739 | 5 -1' | 270 | 10 - | | | | 10 |
| LUCATION I | 00.37 | J -1 | 270. | 10 2 | 214.28 | 2 | 66 | |
| EQUATION 2 | 86.55 | 6 - | 7532 | •6 - | 10.18 3 | 5.7757 | 58 | |
| FLASH POINT (| 66.55 DEG C) | (C(| 7532 () REF | REF | (0 | 5.7757 C) REF | 58 | |
| EQUATION 2 FLASH POINT(| MITS VOL 1. | LOWER PER O | 7532 REF 8(D | .6 | (0 | UPPER PER RE | 58 | |

2.3.4-TRIMETHYLPENTANE

| SYNONYMS. Formula= C8H18 | C/H= 5.296 | MW= 114. | 233 VD= 3 | .9391 | |
|---|------------------------------|-------------------------|------------------------|-------------|-------------|
| HEAT OF COMBUSTION OF LIQUID | (NET) | CAL/MOLE 1211.60 | CAL/GRA 10606. | M REF | |
| HEAT OF VAPORIZATIO | | 9.01 | 78.89 | 11 | |
| DENSITY (GRAM/ML) . REFRACTIVE INDEX 1 SURFACE TENSION 2 | . 10 122 | 25 (•715(1•40) | REF 03 11 198 11 | | |
| VISCOSITY (CS) | | | | | |
| VAPOR PRESSURE(MM H P 1 10 | G)-TEHPERAT 30 | URE (DEG C) 40 100 | DATA 400 | 760 | REF |
| | | | | | |
| VAPOR PRESSURE EQU A EQUATION 1 6.9834 EQUATION 2 58.186 | -1388.78 | 225.14 | D | MAX ERR | AT P 10. |
| | | | | | |
| FLASH POINT(DEG C) | 5. (8 2. 20 | (L)(9)(J) | (OC) REF | | |
| FLAMMABLE LIMITS VOL P | LOWER ER REF 8(DD) | | UPPER OL PER RE | | |
| | 0,00, | | | | |
| AUTOIGNITION TEMPER DEG C DELAY(S | | | DEG C REF | | |
| | | | | *********** | |
| MAX FLAME VEL(CM/SE | | | | | JEL |
| MIN IGN ENERGY(MILL QUENCHING DISTANCE() | IJOULE) = | ICH REF | ABS MI | N REF | |

2-METHYL - 3-E THYLPENTANE

| (DEG C) IMITS VOL | LOWE PER 98 | R REF 8 (Di | REF 20(A) | voL | | EF | |
|--------------------------------|--|---|---|--|---|--|---|
| (DEG C) IMITS VOL | (C 3. | C) | REF 20(A) | () | OC) RE | F | |
| | (C | (C) | REF | (| | | |
| | | | | | | | |
| SURE EQ A 7.021 57.50 | .7 -1 .3 - | 8 407. 6382 | 20 | C 224.37 -5.78 | D 1.0623 | MAX ERR 1.08 .36 | AT P 10. 10. |
| | | 0 | 40 35.2 | 100 2 55.7 | 400 94.0 | 760 115.6 | REF 21 |
| SION CS) | 21.52 | | 20 | 21.05 | 11 | | |
| AM/ML) INDEX | 1.404 | 01 | 11 11 | 1.4016 | 7 11 | | |
| | ON (25 | (C) | | 9.21 | 80.6 | 0 11 | |
| BUSTION | 1 (N | IET) | KCAL 121 | L/MOLE 12.90 | CAL/GR 10618 | AM REF | |
| | ORIZATION ORIZATION INDEX SION CS) URE(MM 10 9.5 | BUSTION (GRC ORIZATION(25) 20 C AM/ML) .7193 INDEX 1.404 SION 21.52 CS) URE(MM HG)-1 10 3 | BUSTION (RET) (GROSS) ORIZATION(25 C) 20 C AM/ML) .71932 INDEX 1.40401 SION 21.52 CS) URE(MM HG)-TEMPE 10 30 9.5 | BUSTION KCAN (NET) 123 (GROSS) 130 ORIZATION(25 C) 20 C REF AM/ML) .71932 11 INDEX 1.40401 11 SION 21.52 20 CS) URE(MM HG)-TEMPERATURE 10 30 40 9.5 35.6 | BUSTION KCAL/MOLE (NET) 1212.90 (GROSS) 1307.58 ORIZATION(25 C) 9.21 20 C REF 25 C AM/ML) .71932 11 .71522 INDEX 1.40401 11 1.4016 SION 21.52 20 21.05 CS) URE(MM HG)-TEMPERATURE(DEG C) D 10 30 40 100 9.5 35.2 55.7 | BUSTION KCAL/MOLE CAL/GR (NET) 1212.90 10618 (GROSS) 1307.58 11447 ORIZATION(25 C) 9.21 80.6 20 C REF 25 C REF AM/ML) .71932 11 .71522 11 INDEX 1.40401 11 1.40167 11 SION 21.52 20 21.05 11 CS) URE(MM HG)-TEMPERATURE(DEG C) DATA 10 30 40 100 400 9.5 35.2 55.7 94.0 | 20 C REF 25 C REF AM/ML) .71932 11 .71522 11 INDEX 1.40401 11 1.40167 11 SION 21.52 20 21.05 11 CS) URE(MM HG)-TEMPERATURE(DEG C) DATA 10 30 40 100 400 760 9.5 35.2 55.7 94.0 115.6 |

3-METHYL-3-ETHYLPENTANE

| MINATE OF CUMI | BUSTION | I | | KCAL | MOLE | | Al/GRA | M R | f f | |
|------------------------|---------|-----------|--------|--------|-------|-------|------------|------|----------------|------|
| | | | | | 2.12 | | | | | |
| | | | | | .80 | | | | | |
| HEAT OF VAPI | | | | | 0.08 | | ?9.49 | | 11 | |
| | | | | | 25 1 | | | | | |
| DENSITY (GR | AM/HL) | .7274 | 2 1 | l | .7235 | 54 | 11 | | | |
| REFRACTIVE | INDEX | 1.407 | 75 11 | l | 1.405 | 549 | 11 | | | |
| SURFACE TENS | CS) | | | | 21.53 | | | | | |
| APOR PRESSI | | | EMPERA | | | | | | | |
| P 1 | 10 | 3 | 0 | 40 | 100 | | 400 | 760 | _ | REF |
| T -23.9 | | | | 36.2 | 57.1 | l | 96.2 | 118. | 3 | 21 |
| VAPOR PRES | SURF FO | HATIO | N COFF | FICIE | NTS | | | | | |
| EQUATION 1 | A | | В | | C | | D | MAX | ERR | AT P |
| QUATION 1 QUATION 2 | 6.940 | 0 -1 | 389.64 | • Z | 24.12 | 10 | 7166 | | - 43 | 10. |
| QUALIUN 2 | | | | | | | 1133 | | | 100. |
| | | 6. | i | 20(AY) | | | | | | |
| FLAMMABLE L | [M | LOWE | R | | | UP | PER | | | |
| | VOL | PER 98 | REF | | V | | _ | F | | |
| AUTOIGNITION DEG C | | | | | | DEG C | REF | | | |
| | | | | | | | | | | |

2,2,3,3-TETRAMETHYLBUTANE

| HEAT OF COMB | USTION | | KC | AL/MOLE | CAL/GRA | M REF | |
|------------------------------|--------|----------------------------------|-------------|------------|-------------------|------------|---------|
| OF LIQUID | | (NET | 1. | 207.56 | 10571. | 11 | |
| | | | | | 11400. | | |
| HEAT OF VAPO | | | | | 89.64 | | |
| | | 20 C | REF | 30 C | REF | 110 C | |
| DENSITY (GRA | M/ML) | | | .8188 | 20 | .6485 | 2 |
| DENSITY (GRA REFRACTIVE I | NDEX | 1.4695 | 2 | | | | |
| SURFACE TENS | ION | 21.14 | 20 | 20.22 | 20 | | |
| VISCOSITY (C | | | | | | | |
| APOR PRESSU | | | IPERATU | | DATA | | |
| 1 | | | | | | 760 | REF |
| -17.4 | | | | | | | |
| | | | | | | | |
| VAPOR PRESS | | UAILON | | | D | MAY FOR | AT D |
| QUATION 1 | 7.674 | R -157 | 3.95 | 222.44 | U | -1-63 | 400- |
| QUATION 2 | 50.11 | 5 -66 | 34.3 | -4.36 | -19.1374 | 63 | 400. |
| | | | | | | | |
| | | | | | | | |
| FLAMMABLE LI | VOL I | | EF | v o | UPPER L PER RE | F | |
| | VOL I | PER R O 8 | EF (OD) | | • • • • • | | |
| FLAMMABLE LI | TEMPER | PER R O 8 RATURE SEC) R | EF LAME TE | D | L PER RE | PERCENT FU | JEL |

NONANE

```
SYNONYMS. NONYL HYDRIDE
FORMULA= C9H2O C/H= 5.362 MW= 128.260 VD= 4.4227
HEAT OF COMBUSTION
                           KCAL/MOLE CAL/GRAM REF
OF LIQUID (NET) 1358.60
(GROSS) 1463.80
HEAT OF VAPORIZATION(25 C) 11.10
                                                    10593. 11
11413. 11
86.54 11
                         .......
20 C REF 25 C REF 37.78 C REF
DENSITY (GRAM/ML) .71763 11 .71381 11
REFRACTIVE INDEX 1.40542 11 1.40311 11
SURFACE TENSION 22.85 (8)(60) 22.44 11
VISCOSITY (CS) .9948 (8)(60) .8087 11
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
P 1 10 30 40 100 400 760 REF T 1.4 38.0 66.0 88.1 128.2 150.8 21
VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P

EQUATION 1 7.3798 -1720.17 231.68 -.48 400.

EQUATION 2 50.770 -6735.7 -4.67 4.5780 .41 100.
                                                                   -.48 400.
                                                                    .41 100.
FLASH POINTIDEG C) (CC) REF (OC) REF 31. 1,3,4 30. (8)(9)(L)
FLAMMABLE LIMITS LOWER UPPER

VOL PER REF

.76 AT 80 C 14(U)

74 1.4 2.9 1,3,4
                             3,6
                    . 8
                   .87
                           (8)(15)(K)
AUTOIGNITION TEMPERATURE
                           REF DEG C REF
1,(22)(47) 206. 3,4
      DEG C DELAY(SEC) REF
      285.
      234.
                66.0
                            49
MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL
                               STOICH REF ABS MIN REF
MIN IGN ENERGY (MILLIJOULE) =
QUENCHING DISTANCE (CM) =
```

2-METHYLOCTANE

| HEAT OF COMP | USTION | | Kr. | AL /MOLF | CAL/GR | AM REF | |
|-------------------------------|---|------------|---------------|-----------|-------------------|-----------|------|
| HEAT OF COME OF LIQUID | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | (NE | 1) 1 | 357.26 | 10582 | . 11 | |
| | | (GROS | S) 1 | 462.46 | 11402 | . 11 | |
| HEAT OF VAPO | | | | 10.67 | | | |
| | | 20 C | REF | 25 C | REF | | |
| DENSITY (GRA | M/ML) | .7134 | 11 | .7095 | 11 | | |
| REFRACTIVE I | | | | | | | |
| SURFACE TENS VISCOSITY (C | | | 20 | 21.41 | 11 | | |
| VAPOR PRESSU | RE (MM | HG)-TE | MPERATUI | RE(DEG C) | DATA | | |
| P 1 | 10 | 30 | 4 | 0 100 | 400 | 760 | REF |
| T -2.5 | 32.2 | 53. | 1 | 81.0 | | 143.3 | 20 |
| VAPOR PRESS | URE EQ | UATION | COEFFIC | CIENTS | _ | | |
| EQUATION 1 | A | | В | C | D | MAX ERR | AT P |
| EQUATION 1 | 6.990 | 8 -14 | 54.44 | 210.56 | 41 5047 | • > 4 | 100. |
| EQUATION 2 | 71.41 | <i>-</i> | 741.Y | -10.00 | 41.500/ | 1 0 | |
| FLASH POINT(| DEG C) | |) REF 20() | | (OC) REF | : | |
| FLAMMABLE LI | VOL | | REF | | UPPER L PER RE | | |
| | TEMPE | RATURE | | DI | EG C REF | · | |
| AUTOIGNITION DEG C 227. | | | 49 | | | | |

3-METHYLOCTANE

| HEAT OF COMB | | | | KCĂL /M | 01 E | CAL /CRAM | DEE | |
|--|--------|--------------------|--------------|---------|------------|-----------|---------|------|
| HEAT OF COMBI | 031104 | (N | FT) | 1357 | 01.C 95 | 10587 | 11 | |
| | | (GPO | 55) | 1463. | 15 | 11408. | 11 | |
| HEAT OF VAPOR | KIZALI | UNIZO | CI | 10. | 64 | 83.35 | 1 1 | |
| | | 20 C | 0.0 | E | 25 (| DEE | | |
| DENSITY (GRAI REFRACTIVE II SURFACE TENS | M/ML) | .7205 | 1 2 | | .7168 | 11 | | |
| REFRACTIVE I | NDEX | 1.406 | 3 11 | | 1.4040 | 11 | | |
| VISCOSITY (C | S) | | | | | | | |
| VAPOR PRESSU | RECHM | HG) - T | EMPERA | TUREID | FG C) D | ATA | | |
| P 1 | 10 | 3 | 0 | 40 | 100 | 400 | 760 | REF |
| P 1 T -2.1 | 33.0 | 53 | . 7 | | 81.0 | | 144.2 | 20 |
| VAROR BOLCE | 106 60 | | | CICICN | * c | | | |
| EQUATION 1 | A | | 8 | | C | D | MAX ERR | AT P |
| EQUATION 1 EQUATION 2 | 6.982 | 8 -14 | 451.55 | 20 | 9.91 | | 1.66 | 10. |
| FOILATION 2 | | _ | | | _ | | | |
| FLASH POINT(| | | | | | | 29 | 50. |
| | DEG C) | LOWER | REF | EF | (| | | 50. |
| FLASH POINT(I | TEMPE | LOWER PER 85 | REF 8(DD) | EF | VOI. | OC) REF | | 50. |

4-METHYLOCTANE

| LEAT OF COMP | LICTION | | م ب | AL /MOL5 | (AL /CD4 | u oce | |
|---------------|------------------------|--------------------------------|---------|----------------------|------------------|---------|------|
| | NO 1 I OM | AMET | K C | AL/MOLE | LAL/GKA | M KEF | |
| OF LIQUID | | | | 358.04 | | | |
| HEAT OF VAPO | | | | 463.24 10.69 | | | |
| | | | | | | | |
| DENCIES 1001 | .4.444.1 | 20 C | REF | 25 C | REF | | |
| DENSITY LUKA | MUSY . | 1202 | 11 | .7163 | 11 | | |
| CIIDENCE TENC | TON 3 | 2 34 | 11 | 1.4039 21.87 | 11 | | |
| VISCOSITY (C | \$) | C • J 7 | 20 | 21.01 | | | |
| | | | CDATII | RE(DEG C) DA | TA | | |
| | | | | 0 100 | | 760 | RFF |
| | | | | 80.0 | | 142.5 | 20 |
| | | | | | | | |
| VAPOR PRESS | URE EQU | ATION (| COEFFII | CIENTS | n | MAY FDD | AT D |
| FOUATION 1 | 4 6.0770 | -1440 | 0.13 | C 209.14 -7.55 | U | 1.11 | 10 |
| EQUATION 2 | 70.568 | -764 | 61.2 | -7.55 | 0235 | - 60 | 30. |
| | | | | 1 4 7 7 | • 7637 | 09 | |
| | | | | 10 | | | |
| FLASH POINT(| DEG C) MITS VOL P | (CC) | REF | (0 | | | |
| FLASH POINT(| DEG C) MITS VOL P 0.8 | (CC) LOWER ER RE 5 8(| REF | (0 | C) REF | | |
| FLASH POINT(| DEG C) MITS VOL P 0.8 | LOWER ER RE 5 8 (| REF | VOL | UPPER PER REI | | |
| FLASH POINT(| DEG C) MITS VOL P 0.8 | LOWER ER RE 5 8 (| REF | VOL | C) REF | | |

2.2-DIMETHYLHEPTANE

| | | C/H= | | | MW= 128.20 | 60 VD= 4 | .4227 | |
|----------------------|------------------------------|----------------------------|-------------|-----|------------|------------------|-----------|---------|
| HEAT OF COMBL | JSTION | • | | KCA | L/MOLE | CAL/GRAD | M REF | |
| OF LIQUID | | | | | | 10567. | | |
| | | | | | | 11387. | | |
| HEAT OF VAPOR | | | | | | 78.75 | | |
| | | | | | 25 C | | | |
| DENSITY (GRAP | | | | | | | | |
| REFRACTIVE IN | | | | | | | | |
| SURFACE TENSI | ION | 20.80 | 1 | 20 | 20.34 | 11 | | |
| VISCOSITY (CS | S) | | | | | | | |
| /ADDU DDE CEUE | | | | | | | | |
| /APOR PRESSUR P 1 | | | _ | | | | 760 | RFF |
| T -11.0 | | | | | | | | |
| | | | | | | | | |
| VAPOR PRESSU | | - | | | | | | |
| | | | | | | D | | |
| EQUATION 1 | | | | | | | .61 | |
| QUATION 2 | | | 7384 | | -7.77 | | 23 | 30. |
| FLASH POINT | JEG CI | 10 | Ci | NEF | | IUCI NET | | |
| | | | | | | | | |
| | | | ·· | | | | | |
| FLAMMABLE LIM | | - | | | | UPPER | | |
| FLAMMABLE LIM | VOL | LOWE PER .85 | REF | | | | | |
| AUTOIGNITION | VOL O. | PER 85 | REF 8(D) | | V01 | UPPER PER REI | | |
| | VOL O. | PER 85 | REF 8(D) | | V01 | UPPER | | |
| AUTOIGNITION | VOL O. TEMPE DELAY! | PER 85 RATUR SEC) | REF 8(D) | | VOL | UPPER PER REI | | UEL |

2.3-DIMETHYLHEPTANE

| SYNONYMS. FORMULA= C9H2O | C/H= 5 | .362 M | W= 128.20 | 50 VD= 4 | .4227 | |
|--------------------------------------|--------------------|---------|-----------|-----------------|---------|--------|
| HEAT OF COMBUST | | | | | | |
| OF LIQUID | (NET) | | | | | |
| HEAT OF VAPORIZA | ATION(25 C) | 1 | 0.46 | 11407. 81.55 | 11 | |
| | | REF | 25 C | REF | | |
| DENSITY (GRAM/MI | .) .7260 | 11 | .7221 | . 11 | | |
| REFRACTIVE INDEX SURFACE TENSION | | | | | | |
| VISCOSITY (CS) | | 20 | 21.01 | • • • | | |
| VAPOR PRESSURE(| M HG)-TEMP | | | | | |
| P 1 10 | | | | | | |
| T -5.2 29 | 7 70.3 | | /8.0 | | 170.5 | 20 |
| VAPOR PRESSURE | EQUATION C | OEFFICI | ENTS | | | |
| | В | | C | D | MAX ERR | |
| EQUATION 1 6.9 EQUATION 2 85. | 9483 -1429 | • 55 | 210.94 | 22 4474 | 23 | |
| EQUALIUN Z 85 | | | -9.09 | | | 3U. |
| FLASH POINT(DEG | 26. | | | UC) KEF | | |
| FLAMMABLE LIMITS V(| LOWER DL PER RE | | VOL | UPPER PER RE | F | |
| AUTOIGNITION TEN | | F | DE | G C REF | | |
| MAX FLAME VEL(CM | I/SEC) FL | | P(DEG K) | VOL (| | JEL |
| MIN IGN ENERGYIN QUENCHING DISTAN | | | | | | |

2.5-DIMETHYLHEPTANE

| SYNONYMS. FORMULA= C9H2O | C/H= 5 | •362 M | W= 128.26 | 0 VD= 4 | .4227 | |
|------------------------------------|--------------|---------|-------------|------------------|-------|------|
| HEAT OF COMBUSTION | | KCAL | /MOLE | CAL/GRAI | REF | |
| OF LIQUID | | | | 10577. | | |
| HEAT OF VAPORIZATI | ON(25 C) | 1 | 0.25 | 11397. 79.92 | 11 | |
| | 20 C | REF | 25 C | REF | | |
| DENSITY (GRAM/ML) | .7167 | 11 | .7127 | 11 | | |
| REFRACTIVE INDEX | | | | | | |
| SURFACE TENSION VISCOSITY (CS) | | | 20.84 | 11 | | |
| VAPOR PRESSURE(MM | HG)-TEMP | ERATURE | | | | |
| P 1 10 | | | | | | |
| T -8.4 26.2 | 46.9 | | 74.1 | | 136.0 | 20 |
| VAPOR PRESSURE EQ | | | ENTS | | | |
| | 8 | | С | D | | |
| EQUATION 1 7.030 | 4 -1461 | .17 | 216.21 | | 63 | 100. |
| EQUATION 2 66.52 | 0 -724 | 8.2 | -7.02 | 5.7003 | 04 | 30. |
| FLASH POINT(DEG C) | (CC) 23.5 | REF | (| | | |
| FLAMMABLE LIMITS VOL | | | V OL | UPPER PER REF | | |
| AUTOIGNITION TEMPE DEG C DELAY(| | | DE | G C REF | | |
| MAX FLAME VEL(CM/S) | | STOICH | | VOL P | | JEL |

2.6-DIMETHYLHEPTANE

| | BUSTION | - | KCAL/MOLE | CAL /GRAI | 4 REF | |
|-----------------------|------------|-------------------|----------------------|-----------|---------|------|
| OF LIQUID | | (MET) | KCAL/MOLE 1355.92 | 10572. | 11 | |
| | | | 1461.12 | | | |
| HEAT OF VAP | DRIZATION | | 10.24 | | | |
| | | | F 25 C | | | |
| DENSITY (GR | AM/ML) .70 | 89 11 | .7049 | 11 | | |
| | | | 1.398 20.38 | | | |
| VISCOSITY (| | 05 20 | 20.30 | 11 | | |
| VAPOR PRESS | JRE(MM HG) | -TEMPERA | TURE (DEG C) | DATA | | |
| | | | 40 100 | | 760 | REF |
| | | | 73.3 | | 135.2 | 20 |
| | | | FICIENTS | | | |
| | A | В | C | D | MAX ERR | AT P |
| EQUATION 1 | 6.9730 | -1425.79 | 213.26 | | 38 | 100. |
| EQUATION 2 | 75.587 | -7644.4 | -8.37 | 16.4512 | -10 | 30. |
| FLASH POINT | | (CC) RE 22. 20 | EF D(AY) | (OC) REF | | |
| FLAMMABLE L | IMITS LO | | | UPPER | | |
| EARINAGEL E | VOL PER | REF 8(DD) | VO | L PER REF | : | |
| | | | | | | |
| AUTOIGNITION DEG C | | | D | EG C REF | | |

3,3-DIMETHYLHEPTALE

| | M603110 | (NET) | KCAL 135 | /MOLE 6.52 | CAL/GRAM | 4 REF | |
|------------------------------|----------------------------------|--------------------|-------------|-----------------|------------------|-------|---------|
| | | (GROSS) | 146 | 1.72 | 11397. | ii | |
| HEAT OF VA | | ION(25 C) | 1 | 0.19 | 79.45 | 11 | |
| DENELTY 10 | | 20 C | REF | 25 C | REF | | |
| PERSITY (G | TNDFY | • /276 1 • 4088 | 11 | .7216 1.4063 | 11 | | |
| SURFACE TE | NOION | 22.01 | 20 | 21.55 | ii | | |
| APOR PRES | SURE(MM | HG)- FEMP | ERATURE | (DEG C) DA | \TA | | |
| P 1 | 10 | 30 | 40 | 100 | 400 | | |
| -8.4 | 26.0 | 46.9 | | 74.0 | | 137.3 | 20 |
| VAPOR PRE | | | OEFFICI | ENTS | | | |
| OUATION 1 | 6 . 857 | 8 15 -1375 | 37 | C 209-05 | U | -1.28 | 100. |
| QUATION 2 | 69.56 | 1 -739 | 0.1 | 209.05 -7.47 | 4251 | .60 | 30. |
| FLASH POIN | T(DEG C) | (CC) | REF | ((| OC) REF | | |
| | | | | | | | |
| FLAMMABLE (| | | | √ 0L | UPPER PER REF | : | |
| FLAMMABLE (| VO'. | PER RE | | | | : | |
| AU10IGNITI(DEG C | VO'. ON TEMPE DELAY(| PER RE | F | | | : | |
| AU101GNIT1(| VO'. ON TEMPE DELAY(| PER RE | F | | PER REF | : | |
| AU101GNITI(DEG C 330. | VOL ON TEMPE DELAY(3.6 | PER RE | F | | PER REF | | JEL |
| LAMMABLE (| | | | | | : | |

3.5-DIMETHYLHEPTANE

| SYNONYMS. Formula= c9h | 120 | C/H= 5 | . 362 | Mw= 128.26 | 0 VD= | 4.4227 | |
|--|-----------------------|-------------------------|-----------------|-------------------------|----------------|---------------------|---------|
| HEAT OF COMB OF LIQUID HEAT OF VAPO | | (NET) | 13 14 | 57.31 62.51 | 10583 11403 | . 11 | |
| DENSITY (GRA REFRACTIVE I SURFACE TENS VISCOSITY (C | M/ML) a NDEX 1 | 20 C 7225 | REF 11 11 | 25 C •7186 1•4044 | REF 11 | | |
| VAPOR PRESSU P 1 T -8.0 | 10 | 30 | 40 | 100 73.9 | 400 | | 20 |
| VAPOR PRESS EQUATION 1 EQUATION 2 FLASH POINT! | A 6.8710 89.811 | 8 0 -1370 1 -831 | •38 4•2 | C 207.44 -10.48 | D 31.3867 | MAX ERR 16 03 | AT P |
| FLAMMABLE LI | MITS | 23.5 LOWER PER RE | | VOL | UPPER PER R | | |
| AUTOIGNITION DEG C | | | F | DE | G C RE | F | |
| MAX FLAME VE | L (CM/SE | C) FL | AME TEN | P(DEG K) | VOL | PERCENT F | UEL |
| IN IGN ENERG QUENCHING DI | - · | | STOICH | H REF | ABS M | IN REF | |

4,4-DIMETHYLHEPTANE

| | C 9H2 O | C/H= | 5.362 | MW= 128.26 | | | |
|------------------------|---------------------|-------------------|--------------|----------------------------------|-----------------|-----------------------|-------------|
| HEAT OF C | | (NET | KCA) 13 | L/MOLE 56.61 61.81 | CAL/GR 10577 | | |
| HEAT OF V | APUNICAL | UNIZIC | , | 61.81 | 7707 | , ,, | |
| | | | | 25 C .7216 1.4053 21.55 | | | |
| REFRACTIV | F INGEX | 1.4076 | 11 | 1.4053 | 11 | | |
| AIZCOZITA | ENSION (CS) | | | | | | |
| VAPOR PRE | SSUREIMM | HG)-TEM | PERATUR | E(DEG C) D | ATA | | |
| 7 -9.0 | 24.5 | 45.2 | 70 | 73.0 | 400 | 760 135.2 | 20 |
| VADOD DO | ESSUBE EN | LIATION . | | IENTS | | | |
| EQUATION EQUATION | 1 6.738 2 121.98 | 19 -130 13 -96 | 3.67 76.5 | 202.50 -15.31 | 80.3885 | MAX ERR 1.60 06 | 100. 30. |
| | | | | (| | | |
| FLAMMABLE | LIMITS | LOWER | | VOL | UPPER | EF | |
| AUTOIGNIT | | | | | | | |
| UEG | C DELAY! | SEC! K | cr | DE | G G KE | r | |
| MAX FLAME | VEL (CM/S | EC) F | LAME TE | MP(DEG K) | VOL | PERCENT F | UEL |
| | | | | H REF | ABS M | IN REF | |
| MIN IGN E QUENCHING | | |) = | | | | |

3-ETHYLHEPTANE

| SYNONYMS. FORMULA= C9H2O | C/H= 5 | 5.362 M | 1W= 128.2 | 60 VD= 4. | 4227 | |
|--|----------|--------------|----------------|-----------------|---------|------|
| HEAT OF COMBUSTION | ١ | KCAL | ./MOLE | | | |
| OF LIQUID | | | 58.73 | 10594. | | |
| HEAT OF VAPORIZATI | | | 53.93 10.71 | 11414. 83.50 | | |
| | | | 25 C | | | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX | .7265 | 11 | .7225 | 11 | | |
| REFRACTIVE INDEX | 1.4093 | 1. 1 | 1.407 | 0 11 | | |
| SURFACE TENSION VISCOSITY (CS) | 22.81 | 20 | 22.34 | . 11 | | |
| VAPOR PRESSURE(MM | HG)-TEMP | ERATURE | (DEG C) | DATA | | |
| P 1 10 | 30 | 40 | 100 | 400 | 760 | REF |
| T -2.6 32.0 | | | | | 143.0 | 20 |
| VAPOR PRESSURE EC | | OEFFICI | ENTS | D | MAY FRR | AT P |
| EQUATION 1 6.927 | | | | | | 10. |
| EQUATION 2 81.68 | 32 -813 | 5.6 | | | | |
| FLASH POINT(DEG C) | | REF 20(AY | | (OC) REF | | |
| FLAMMABLE LIMITS | LOWER | | | UPPER | | |
| VOL | PER RE | F | V 01 | L PER REF | | |
| AUTOIGNITION TEMPE DEG C DELAY(| | F | DI | EG C REF | | |
| MAX FLAME VEL(CM/S | SEC) FL | AME TEM | | | | JEL |
| MIN IGN ENERGY(MIL QUENCHING DISTANCE | | - | REF | ABS MIN | KEF | |

4-ETHYLHEPTANE

| SYNONYMS. FORMULA= C9H2O | | | | | |
|--|---|---|------------------------------|----------------|--------------------|
| HEAT OF COMBUS | (NET) | KCAL/MOLE 1358.82 | CAL/GRAM 10594. | REF 11 | |
| HEAT OF VAPORT | LATIUNI 25 CT | 10.71 | 83.50 | 11 | |
| DENSITY (GRAM/ REFRACTIVE IND SURFACE TENSIO VISCOSITY (CS) | 20 C ML) .7281 EX 1.4096 IN 22.81 | REF 25 (11 .724) 11 1.40 20 22.34 | REF 1 11 73 11 6 11 | | |
| VAPOR PRESSURE P 1 T -3.4 3 | (MM HG)-TEMPE 10 30 1.0 51.4 | ERATURE (DEG C) 40 100 79.0 | DATA 400 | 760 141.2 | REF 20 |
| VAPOR PRESSUR EQUATION 1 6 EQUATION 2 8 | E EQUATION CO A B •9114 -1397 •7•486 -8388 | C .72 205.61 8.3 -10.07 | D 24.1768 | MAX ERR .95 | AT P 10. 30. |
| FLASH POINTIDE | G C) (CC) | REF 20(AY) | | | |
| FLAMMABLE LIMI | TS LOWER VOL PER REF | | UPPER OL PER REF | | |
| AUTOIGNITION T DEG C DE | EMPERATURE LAY(SEC) REF | : (| DEG C REF | | |
| MAX FLAME VEL(| CM/SEC) FLA | | | | JEL |
| MIN IGN ENERGY QUENCHING DIST | | STOICH REF | ABS MIN | REF | |

2,2,4-TRIMETHYLHEXANE

| FORMULA= C9F | | | | | | | |
|---|--|---------------------------------------|---------------------|--------------------|-----------------------|--------------|-----|
| HEAT OF COME | BUSTION | 1 4 4 4 4 | K(| CAL/MOLE | CAL/GR | AM REF | |
| OF LIQUID | | | | 1356.58 1441.78 | | | |
| HEAT OF VAPO | | | | | | | |
| | | | | | | | |
| | | 20 C | REF | 25 C | REF | | |
| DENSITY (GRA | M/ML) | .7156 | 11 | .7118 | 11 | | |
| REFRACTIVE I | | | | | | | |
| SURFACE TENS VISCOSITY (C | (2) | 20.51 | 20 | 20.09 | 11 | | |
| VAPOR PRESSU | REIMM | | | | | | |
| P 1 | | | | | | | |
| T -16.0 | 17.0 | 38 | .0 | 65.0 | | 126.5 | 20 |
| VAPOR PRESS | URE EQ | OITAU | COEFF | ICIENTS | | | |
| EQUATION 1 | 6.777 | 9 -15 | 309.23 | 209.23 | U | -2.11 | 10. |
| EQUATION 2 | 112.06 | 8 - | 3958.7 | -13.92 | 72.8683 | 1.59 | 30. |
| LASH POINT | DEG C) | (C(| ;) REF | | | | |
| | MITS VOL | LOWER | \ REF | F | (OC) RE | F | |
| FLAMMARLE LI | MITS VOL O. | LOWER PER 85 | REF 8(DD) | F | (OC) RE UPPER L PER R | EF | |
| FLASH POINT (FLAMMARLE LI AUTOIGNITION DEG C | MITS VOL O. I TEMPE DELAY(| LOWER PER 85 RATURE SEC 1 | REF 8(DD) REF | V 0 | UPPER L PER R | F PERCENT F | |

2,2,5-TRIMETHYLHEXANE

| SYNONYMS. Forhula= c9h | 20 (| /H= 5 | .362 | Mw= 128.260 | VD= 4 | .4227 | |
|------------------------------|-----------|--------|---------|--------------------------|------------------|------------|------|
| HEAT OF COMB | | (NET) | 13 | L/MOLE 54.00 59.20 | 10557. | 11 | |
| HEAT OF VAPO | RIZATION | (25 C) | | | 74.86 | 11 | |
| DENSITY (GRA | 2 | 0 C | REF | 25 C | REF | | |
| REFRACTIVE I | NDEX 1. | 39972 | 11 | 1.39728 | 11 | | |
| SURFACE TENS VISCOSITY (C | ION 20 | .04 | 20 | 19.60 | 11 | | |
| VAPOR PRESSU | | | | | | | |
| P 1 T -18.2 | | | | | | | |
| | | | | | | | |
| VAPOR PRESS | URE EQUA | TION C | OEFFIC | IENTS | n | MAX FRD | AT P |
| EQUATION 1 | 7.0800 | -1466 | .03 | 225.21 | U | 1.50 | 10. |
| EQUATION 2 | 44.906 | -600 | 1.7 | -3.86 -1 | 8.2516 | 50 | 30. |
| FLASH POINT(| DEG C) | (CC) | REF | (0 13 | C) REF | | |
| | | | | | | | |
| FLAMMABLE LI | VOL PE | | F | VOL | UPPER PER REI | : | |
| AUTO I GNITION | TEMPERA | TURF | | | | | |
| | DELAYISE | | F | DEG | C REF | | |
| MAX FLAME VE | L (CM/SEC |) FL/ | AME TEI | MP(DEG K) | VOL 1 | PERCENT FL | JEL |
| MIN IGN ENER QUENCHING DI | | | STOIC | H REF | ABS MIN | I REF | |

2,3,3-TRIMETHYLHEXANE

| SYNONYMS. FORMULA= C9H2O | C/H= 5 | .362 MI | w= 128.260 | | | |
|---|---------------------|-----------|------------|-----------------------------|------------|--------------|
| HEAT OF COMBUSTI OF LIQUID | (NET) | | 7.31 | ONL/GRA 10583. 11403. | M REF | |
| HEAT OF VAPORIZA | TION(25 C) | 10 | 0.09 | | 11 | |
| DENSITY (GRAM/ML | 20 C | REF | 25 C | 11 | | |
| DENSITY (GRAM/ML REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | | | | 11 | | |
| VAPOR PRESSURE(MP 1 10 | M HG)-TEMP 30 | ERATURE (| 100 | TA 400 | 760 | |
| T -9.0 25. | | | | | 137.7 | 20 |
| VAPOR PRESSURE A EQUATION 1 6.6 | 8 | | C | D | | AT P 100. |
| EQUATION 2 108. | | | -13.31 6 | 2.8681 | .22 | 30. |
| FLASH POINT(DEG | 26. | 1 | | JPPER | | |
| | L PER RE 0.85 8(| | VOL i | PER RE | F | |
| AUTOIGNITION TEM DEG C DELA | | F | DEG | C REF | | |
| MAX FLAME VEL(CM | /SEC) FL | AME TEMP | (DEG K) | VOL (| PERCENT FI | JEL |
| MIN IGN ENERGY(M QUENCHING DISTAN | | | KEF | ABS MI | N REF | |

2,3,4-TRIMETHYLHEXANE

| SYNONYMS. FORMULA= C9H2 | | 5.362 | MW= 128.20 | 50 VD= 4. | 4227 | |
|--|--|------------------------------------|--------------------------------|------------------|------|------|
| HEAT OF COMBU | STION (NI | ET) 13 | 58.05 | 10588. | 11 | |
| HEAT OF VAPOR | IZATION125 | C) | 10.26 | | 11 | |
| DENSITY (GRAM REFRACTIVE IN SURFACE TENSI VISCOSITY (CS | 20 C /ML) .7392 DEX 1.4144 ON 22.80 | REF 11 11 | 25 C .7354 1.4120 | 11 | | |
| VAPOR PRESSUR P 1 T -7.0 | E(MM HG)-TI 10 30 27.0 48 | 40 | 100 76.0 | 400 | | |
| VAPOR PRESSU EQUATION 1 EQUATION 2 1 | A 6.7674 -13 12.961 -9 | 0 COEFFIC B 334.80 9331.2 | IENTS C 204.28 -13.95 | D 70.6836 | 1.16 | 100. |
| FLASH POINTID | EG C) (C | | | (OC) REF | | |
| FLAMMABLE LIM | | | | UPPER PER REF | | |
| AUTOIGNITION DEG C D | TEMPERATURE ELAY(SEC) | | DE | G C REF | | |
| MAX FLAME VEL | (CM/SEC) | | | | | JEL |
| MIN IGN ENERGY QUENCHING DIS | | STOIC! .E)= | H REF | ABS MIN | REF | |

2.3.5-TRIMETHYLHEXANE

| SYNONYMS. FORMULA= C9H2 | | C/H= | 5. | . 362 | MW= | 128.2 | 60 VD= | 4.4227 | |
|----------------------------|-----------|---|------|--------|----------|-------|-----------------|----------------|--------|
| HEAT OF COMBU | STION | | | KC | AL/MO | LE | CAL/G | RAM REF | |
| OF LIQUID | | | | | | | | 5. 11 | |
| | | | | | | | | 5. 11 | |
| HEAT OF VAPOR | | ON (25 | | | 9.90 | 0 | | 19 11 | |
| | | | | | | | REF | | |
| DENSITY (GRAM | | | | | | | | | |
| REFRACTIVE IN | | | | | | | | | |
| SURFACE TENSI | ON | | | | | | | | |
| VAPOR PRESSUR | E (MM | HG) - 1 | | | | | | | |
| P 1 | | | | | | | | | |
| T -12.9 | 21.0 | • | • U | | | 04.0 | | 131.5 | 20 |
| VAPOR PRESSU | | | N C | DEFF I | CLENTS | S | | | |
| | | | 8 | | С | | D | MAX ER | R AT P |
| EQUATION 1 | 6.870 | 3 -1 | 372 | . 33 | 212. | .66 | | 1.0 | 0 30. |
| EQUATION 2 | 82.51 | 2 - | 7787 | 7.6 | -9. | .46 | 28.4998 | 1.1 | 1 30. |
| FLASH POINT(D | EG CI | ((| (C) | REF | | | (OC) R 13. (| | |
| FLAMMABLE LIM | VOL | LOWE PER 85 | REF | • | | | UPPER L PER | REF | |
| AUTOIGNITION DEG C D | | | | : | | DI | EG C RI | E F | |
| MAX FLAME VEL | (CM/S | EC) | FLA | ME T | EMP (DE | G K) | V0 | L PERCENT | FUEL |

2.4.4-TRIMETHYLHEXANE

| HEAT OF COMB | USTIO | V | | KCAL | /MOLE | CAL | /GRAM | REF | |
|--|-------------------|--------------------------------------|-------------------|------|-----------------------------|---------------|---------|----------|---------|
| OF FIGUID | | (N | ETI | 135 | 7.07 | 10 | 581. | 11 | |
| | | IGRO | 551 | 146 | 2.27 | 11 | 401. | 11 | |
| HEAT OF COMB | | | | | | | | 11 | |
| DENSITY (GRA REFRACTIVE I SURFACE TENS | | 20 C | RE | F | 25 C | RE | F | | |
| DENSITY IGRA | M/ML) | .7238 | 1 11 | | .7200 | 7 11 | | | |
| REFRACTIVE I | NDEX | 1.407 | 45 11 | l . | 1.405 | 15 11 | | | |
| SURFACE TENS VISCOSITY (C | S) | 21.17 | 20 | , | 20.75 | 11 | | | |
| VAPOR PRESSU | RE(MM | нG)-Т | Empera | TURE | (DEG C) | DATA | | | |
| P 1 | 1.0 | 3 | 0 | 40 | 100 | 40 | 0 | 760 | REF |
| T -14.2 | 19.9 | 40 | • 6 | | 68.1 | | 1 | 130.7 | 20 |
| VADOR DRESS | HOE EC | NIATIO | N COFE | FICE | ENTS. | | | | |
| EQUATION 1 EQUATION 2 | A | | В | | C | D | | MAX ERR | AT P |
| EQUATION 1 | 6.83 | 55 -1 | 359.35 | • | 213.07 | | | 09 | 10. |
| EQUATION 2 | 83.84 | - | 7784.3 | 1 | -9.68 | 32.44 | 50 | .15 | 30. |
| | | | | | | | | | |
| FLASH POINT! | DEG C |) (C | C) R | | | | | | |
| | MITS VOL | L OWE | R REF | EF | | (OC) | REF | | |
| FLAMMABLE LI | MITS VOL O. | LOWE PER 85 | R REF 8(DD) | EF | vo | (OC) | REF | | |
| FLAMMABLE LI | MITS VOL O. | LOWE PER 85 RATUR | R REF B(DD) | TEM | VO D P(DEG K) | UPPE L PER | REF REF | RCENT FL | JEL |
| FLAMMABLE LI AUTOIGNITION DEG C | TEMPE DELAY | LOWEL PER .85 RATUR SEC) | R REF 8(DD) | TEM | vo | UPPE L PER | REF REF | RCENT FL | JEL |

3.3.4-TRIMETHYLHEXANE

| SYNONYMS. FORMULA= C9H2O | C/H= 5.36 | 2 MW= 128.2 | 60 VD= 4. | 4227 | |
|---|-------------------------|----------------------|--------------------|---------------|-------------|
| HEAT OF COMBUSTION OF LIQUID | (NET) | KCAL/MOLE 1357.92 | CAL/GRAM 10587. | REF | |
| HEAT OF VAPORIZATI | UN125 L1 | 10.11 | 10.02 | 11 | |
| | 20 C RE | F 25 C | REF | | |
| DENSITY (GRAM/HL) | .7454 11 | .7414 | 4 11 | | |
| DENSITY (GRAM/HL) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | | | | | |
| VAPOR PRESSURE(MM P 1 10 | HG)-TEMPERA | TURE (DEG C) | DATA | | RFF |
| 7 -7.9 27.0 | 48.0 | 77.0 | | 140.5 | 20 |
| VADOR BRESSING EN | HATTON COEE | E IC LENTS | | | |
| EQUATION 1 6.840 EQUATION 2 105.14 | 3 -1397.23 5 -8880.0 | 212.20 -12.84 | 74.9474 | 2.08 -1.10 | 100. 30. |
| FLASH POINT(DEG C) | | EF | | | |
| | PER REF | VOI | UPPER . PER REF | | |
| 0. | 85 8(DD) | | | | |
| AUTOIGNITION TEMPE DEG C DELAY(| | DE | G C REF | | |
| MAX FLAME VELICH/S | EC) FLAME | TEMP(DEG K) | VOL P | ERCENT FL | JEL |

ABS MIN REF

STOICH REF MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM) =

2.2.3.3-TETRAMETHYLPENTANE

| HEAT OF COME | BUSTION | | CAL /MOLE | C.A.I | /GRAM | REF | |
|---------------------------------------|---|---|---------------|---|-----------------------------------|--------------|------|
| OF LIQUID | (| NET) | 1357.90 | 10 | 0587. | 11 | |
| | | | 1463.10 | | | | |
| HEAT OF VAPO | | | | | | | |
| DENSITY (GRA | 20 | C REF | 25 | C RI | EF | | |
| DENSITY (GRA | M/ML) .756 | 66 11 | .75 | 299 1 | l | | |
| REFRACTIVE 1 | | | | | | | |
| SURFACE TENS VISCOSITY (| SIUN 23.3 | 38 20 | 22. | . 43 1 | L | | |
| VAPOR PRESSU | JRE(MM HG)- | TEMPERAT | UREIDEG C |) DATA | | | |
| P 1 | 10 | 30 | 40 10 | 00 40 | 00 | | |
| f -10.3 | | 7.4 | | 5.7 | 1 | 40.3 | |
| VAPOR PRESS | SURE EQUATI | ON COEFF | ICIENTS | | | | |
| EQUATION 1 | A | B | C | , D | | MAX ERR | AT P |
| EQUATION 1 | 7.0726 - | -5740 4 | 228.99 |) 25 71 | 74 | 1.73 | 10. |
| EQUATION 2 | 30.004 | -5/40.6 | -2.00 | -23.1. |) / 4 | 00 | 306 |
| | | | | | | | |
| | | | | | | | |
| FLAMMABLE LI | MITS LOW | | | UPPE | R | | |
| FLAMMABLE LI | VOL PER | REF | | VOL PER | REF | 244 661 | |
| FLAMMABLE LI | VOL PER | REF | (A,GG) | VOL PER | REF | .2(A,GG) | |
| | VOL PER •8 •84 | REF 3,4,12 (8)(15 | (A,GG) | VOL PER | REF | .2(A,GG) | |
| auto!gnition | VOL PER •8 •84 | REF 3,4,12 (8)(15 | (A+GG) (M) | VOL PER 4.9 | REF 3,4,1 | .2(A,GG) | |
| AUTO!GNITION DEG C 505. | VOL PER -8 -84 I TEMPERATU DELAY(SEC) | REF 3,4,12 (8)(15 | (A+GG) (M) | VOL PER 4.9 DEG C 516. | REF 3,4,1 | .2(A,GG) | |
| AUTO!GNITION DEG C 505. | VOL PER | REF 3,4,12 (8)(15 | (A+GG) (M) | VOL PER 4.9 DEG C | REF 3,4,1 | .2(A,GG) | |
| 505. | VOL PER •8 •84 I TEMPERATU DELAY(SEC) 42. | REF 3,4,12 (8)(15 JRE REF 51(AU) 49 | (A,GG) | VOL PER 4.9 DEG C 516. 430. | REF 3,4,1 REF 51(AT | .2(A,GG) | JEL |
| AUTO!GNITION DEG C 505. 452. | VOL PER •8 •84 I TEMPERATU DELAY(SEC) 42. | REF 3,4,12 (8)(15 JRE REF 51(AU) 49 | (A,GG) | DEG C 516. 430. | REF 3,4,1 REF 51(AT 4 | RCENT FL | JEL |

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2,2,3,4-TETRAMETHYLPENTANE

| SYNONYMS. FORMULA= C9 | H2 0 | C/H= | 5 | . 362 | MW= 128.2 | 60 VD= | 4.4227 | |
|-------------------------------|------------------------------|--------------------|----------|-------------------|-----------|------------------|-----------------------|------|
| HEAT OF COM | BUSTIO | ν | | KCA | L/MOLE | CAL/GR | AM REF | |
| OF LIQUID | | | | | 358.37 | | | |
| WEAT OF WAR | | | | | 63.57 | | | |
| HEAT OF VAP | | | | | 9.80 | | | |
| | | | | | 25 C | | | |
| DENSITY (GR REFRACTIVE | | | | | | | | |
| SURFACE TEN | | | | | | | | |
| ISCOSITY (| | | | 20 | 21.54 | •• | | |
| APOR PRESS | UR E L MM | HG) - T | EMP | ERATUR | E (DEG C) | DATA | | |
| P 1 | | | | | | | 760 | REF |
| T -13.0 | | | | | | | | |
| VAPOR PRES | SURE E | OLTAU | N C | 0EFF10 | LENTS | | | |
| EQUATION 1 | A | | В | | C | D | MAX ERR | AT P |
| QUATION 1 | 6.710 | 01 -1 | 303 | •57 | 7.07.30 | 63 3330 | 81 | 10. |
| EQUATION 2 | 102.53 | 3B - | 86Z | U•Z | -12.44 | 21.1229 | .48 | 30. |
| | | | | | | | | |
| FLASH POINT | IMITS | LOWE | R REI | REF | | (OC) RE | | |
| FLASH POINT | IMITS VOL | LOWE PER .85 | R RE! | REF | | UPPER L PER R | E F | |
| FLASH POINT | IMITS VOL O. | LOWE PER .85 | R REI | REF F DD; | VOI | UPPER L PER R | F EF | |
| LAMMAGLE L AUTOIGNITIO DEG C | IMITS VOL O. | LOWE PER 85 | R REI | REF FDD; AME TE | VOI | UPPER R EG C RE | F EF PERCENT FI | |
| LASH POINT | IMITS VOL O. N TEMPE DELAY(| LOWE PER .85 | R REI | REF FDD; AME TE | VOI | UPPER R EG C RE | F EF PERCENT FI | |

2.2.4.4-TETRAMETHYLPENTANE

SYNONYMS.

| FORMULA= C9H2O | C/H= 5.362 MW= | 128.260 VD= 4 | .4227 |
|--|---|---------------------|--------------|
| HEAT OF COMBUSTION OF LIQUID | KCAL/M | OLE CAL/GRA | M REF |
| OF LIQUID | (NET) 1357. | 49 10584. | 11 |
| | (GROSS) 1462. | 69 11404. | 11 |
| HEAT OF VAPORIZATI | ION(25 C) 9. | 71.03 | 11 |
| | 20 C REF | | |
| DENSITY (GRAM/41) | .71947 11 | .71563 11 | |
| REPACTIVE INDEX | 1.40696 11 | 1.40459 11 | |
| DENSITY (GRAM/AL) REFRACTIVE INDEX SURFACE TENSION | 20-37 20 | 19.92 | |
| VISCOSITY (CS) | | | |
| | | | |
| VAPOR PRESSURE (MM | | | 3.0 |
| P 1 10 | 30 40 | 100 400 | 760 REF |
| T -24.7 12.5 | 33.0 | 60.1 | 122.3 20 |
| VADOR DRESSURE EC | MATION COFFEICIEN | TC | |
| EQUATION 1 7.570 EQUATION 2 -31.43 | 8 | C D | MAX ERR AT P |
| EQUATION 1 7.570 | 2 -1803.34 26 | 2.75 | 4.37 10. |
| EQUATION 2 -31.43 | 7 -2446.1 | 7.49 -103.9010 | -1.52 30. |
| | | | |
| FLASH POINTIDEG CI | (CC) REF | (OC) REF | |
| | | | |
| FLAMMABLE LIMITS | LOWER | UPPER | |
| FLAMMABLE LIMITS | LOWER PER REF | UPPER VOL PER RE | |
| VOL | LOWER PER REF 85 8(DD) | UPPER VOL PER RE | |
| VOL | PER REF | UPPER VOL PER RE | F |
| VOL 0. | PER REF 85 8(DD) | UPPER VOL PER RE | F |
| VOL O. AUTOIGNITION TEMPE | PER REF 85 8(DD) | VOL PER RE | F |
| VOL O. AUTOIGNITION TEMPE | PER REF 85 8(DD) | VOL PER RE | F |
| VOL O. AUTOIGNITION TEMPE | PER REF 85 8(DD) RATURE SEC) REF | VOL PER RE | |
| AUTOIGNITION TEMPE DEG C DELAYO | PER REF. 85 8 (DD) RATURE SEC) REF. | DEG C REF | PERCENT FUEL |
| AUTOIGNITION TEMPE DEG C DELAYO | PER REF. 85 8 (DD) RATURE SEC) REF. EC) FLAME TEMP(STOICH | VOL PER RE | PERCENT FUEL |
| AUTOIGNITION TEMPE DEG C DELAYO | PER REF. 85 8(DD) RATURE SEC) REF SCO FLAME TEMP(STOICH LIJOULE)= | DEG C REF | PERCENT FUEL |

2,3,3,4-TETRAMETHYLPENTANE

| SYNONYMS. Formula= c9h | 120 | C/H= | 5.362 P | w= 128.260 | VD= 4. | .4227 | |
|---|---|---|----------------|-------------------|------------------|---------|------------|
| HEAT OF COME | SUSTION | | KCAL | /MOLE | CAL/GRAP | REF | |
| F LIQUID | | | | 8.02 | | | |
| | | IGROS | S) 146 | 3.22 | 11408. | 11 | |
| HEAT OF VAPO | | ON125 | Cl | | 77.81 | 11 | |
| | | 20 C | REF | 25 C | REF | | |
| DENSITY (GRA | M/ML) | . 15413 | 1.1 | ./5113 | 11 | | |
| REFRACTIVE I | | | | | | | |
| SURFACE TENS VISCOSITY (C | | 23.31 | 20 | 22.88 | 11 | | |
| VAPOR PRESSU | RE(MM I | HG)-TEI | MPERATURE | (DEG C) DA | Ta | | |
| P 1 | 10 | 30 | 40 | 100 | 400 | 760 | REF |
| T -8.4 | 27.2 | 48. | 5 | 77.0 | | 141.5 | 20 |
| VAPOR PRESS | UKE EQI | UATION | COEFFICE | ENTS | | | |
| | A | | В | C | D | MAX ERR | AT P |
| EQUATION 1 EQUATION 2 | 65.29 | 9 -140 9 -70 | 51.36 082.7 | 219.24 -6.91 1 | 3.2015 | 09 | 10. 30. |
| | | | | | | | |
| | | | | | | | |
| FLASH POINT | DEG C) | (CC |) REF | (0) | C) REF | | |
| FLASH POINT | DEG C) | (CC | REF | (0) | C) REF | | |
| FLASH POINT | DEG C) MITS VOL 1 | LOWER PER F | REF | VOL (| C) REF | | |
| FLASH POINT | DEG C) MITS VOL I O. (| LOWER PER F | REF S(DD) | VOL | C) REF | | |
| FLASH POINT | DEG C) MITS VOL 1 | LOWER PER 6 85 (| REF | VOL | C) REF | | |
| FLAMMABLE LI AUTOIGNITION DEG C 437. | DEG C) MITS VOL (O.(| LOWER PER 6 85 (| REF S(DD) | VOL O | UPPER PER REF | T) | |
| FLAMMABLE LI AUTOIGNITION DEG C 437. 497. | DEG C) MITS VOL (O.(| LOWER PER 6 85 (| REF SIDD) | VOL DEG 514 | UPPER REF | T) | |
| FLAMMABLE LI AUTOIGNITION DEG C 437. 497. | DEG C) MITS VOL I O. (| LOWER PER 6 85 (| REF S(DD) | VOL O | UPPER REF | T) | |
| LASH POINT (LAMMABLE LI LUTOIGNITION DEG C 437. 497. | DEG C) MITS VOL 1 TEMPER DELAY(S 24.0 | LOWER PER PER PER PER PER PER PER PER PER P | REF S(DD) | VOL DEG 514 | UPPER REF | T) | |

2.2-DIMETHYL-3-ETHYLPENTANE

| FORMULA= C9H2(| | | | | | |
|--|----------------------------|---|------------------|---------------------|----------------------|-----|
| HEAT OF COMBUS OF LIQUID | STION | | KCAL/MOLE | CAL/GR | AM REF | |
| OF LIQUID | 100 | NEI) | 1357.52 | 10584 | 11 | |
| HEAT OF VAPOR | IZATION(2 | 5 C) | 1462.72 10.04 | 78.2 | 8 11 | |
| DENSITY (GRAM | | | | | | |
| REFRACTIVE INC | 7 ML | 23 11 | 1.410 | 12 11 | | |
| SURFACE TENSIC | ON 22.3 | 8 20 | 21.92 | 2 11 | | |
| APOR PRESSURE | | TEMPERA | TURE (DEC C) | DATA | | |
| P 1 T -10.9 | 22.0 4 | 3.0 3.0 | 71.0 | 400 | 133.8 | 20 |
| VAPOR PRESSUR | RE EQUATI | ON COEFI | FICIENTS | | | |
| EQUATION 1 | 5.5713 - | 1221-89 | 196.90 | U | -2.42 | 10- |
| COAL COAL | | | | | | |
| | 48.981 - | 10767.7 | -19.38 | 120.5405 | .89 | 30. |
| FLASH POINTIDE | EG C) () ITS LOW VOL PER | 10767.7 CC) RI | -19.38 | 120.5405 (OC) RE | . 89 F | 30. |
| FLASH POINTIDE FLAMMABLE LIMI AUTOIGNITION I DEG C DE | ITS LOW VOL PER O.85 | 10767.7 CC) RI ER REF 8(DD) | -19.38 EF | UPPER OL PER | .89 F | 30. |
| FLASH POINTIDE | EG C) (| ER REF B(DD) | -19.38 EF | UPPER DL PER R | F EF PERCENT F | 30. |

2.4-DIMETHYL-3-ETHYLPENTANE

| HEAT OF COM | BUSTION | 1 | | KCA | L/MOLE | C. | AL/GRAM | REF | |
|--|-----------------------|-------------------|------------------|-------|---------|--------|-------------|---------|-----|
| OF LIQUID | | (N | ET) | 13 | 58.14 | | 10589. | 11 | |
| | | | | | 63.34 | | | | |
| HEAT OF VAP | | | | | 10.26 | | | | |
| | | 20 C | | REF | 25 | C | REF | | |
| DENSITY IGR | AM/ML) | .7379 | _ | 11 | .73 | 41 | 11 | | |
| REFRACTIVE | INDEX | 1.413 | , | 11 | 1.4 | 115 | 11 | | |
| SURFACE TEN | | 22.80 | • | 20 | 22. | 34 | | | |
| VAPOR PRESS | URE(MM | HG) - T | EMPER | RATUR | EIDEG C |) DATA | | | |
| P 1 | | | | | | | | 760 | REF |
| T -8.4 | | | •0 | | 73 | •0 | | 136.7 | |
| VAPOR PRES | | | N CO | FFIC | IENTS | | | | |
| | | | В | | С | 1 | D | MAX ERR | |
| EQUATION 1 EQUATION 2 | 6.411 | 5 -1 | 144.3 | 8 | 187.01 | | | -2.69 | 10. |
| | | | | | | | | | |
| | | | | | | | 5742 | | 30. |
| FLASH POINT | OEG C) | LOWE | C) R REF | REF | | (OC) | REF | | 30. |
| FLASH POINT FLAMMABLE L AUTOIGNITIO DEG C 390. 472. | OEG C) IMITS VOL O. | LOWE PER 85 | C) R REF 8(D) | REF | | (OC) | REF PER REF | ••••• | 30. |

3.3-DIFIHYLPENTANE

| |) C | | | | | | | | |
|----------------|---------------|-------------------|-------|--------------|-----------------|---------------|-------|-----|------|
| TEAT OF COMBUS | STION | == . | KC | AL/MOLE | CAL | /GRA | M RE | F | |
| of Liquid | | (NET) | 1 | 358.81 | 10 | 3594. | 1 | 1 | |
| ICAL OF VAPOR | LAITON | 125 61 | | 10.36 | • | | 4 | 1 | |
| | | | | | | | | | |
| DENSITY (GRAMA | /ML) ./: | 5359 62051 | 11 | 1.41 | 00 11 837 11 | | | | |
| URFACE TENSIC | JN 23 | .75 | 20 | 23.2 | 9 11 | | | | |
| APOR PRESSURE | | | | | | | _ | | |
| -4.2 <u>1</u> | 30.7 | 52.4 | | 0 100 81. | 0 | | 146.2 | | 20 |
| VAPOR PRESSUR | RE EQUAT | ION C | OEFFI | CIENTS | n | | MAX 6 | FRR | AT P |
| QUATION 1 6 | 7372 | -1357 | .63 | 205.75 | U | | | 98 | 10. |
| GUATION 2 10 | 04.532 | -899 | 5.9 | -12.71 | 65.38 | 111 | | .54 | 30. |
| | | | | | | | | | |
| | | | | | | | | | |
| LASH POINTIDE | G C) | (CC) | REF | V(| (OC) | REF R R | | | |
| FLASH POINT(DE | TS LC VOL PER | (CC) OWER RE 3, | REF | V(| UPPE | REF | | | |

DECANE

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SYNONYMS. DECYL HYDRIDE

      HEAT OF COMBUSTION
      KCAL/MOLE
      CAL/GRAM
      REF

      OF LIQUID
      (NET)
      1504.34
      10573.
      11

      (GROSS)
      1620.06
      11386.
      11

      HEAT OF VAPOR (ZATION(25 C)
      12.28
      86.30
      11

20 C REF 25 C REF 37.78 C REF
DENSITY (GRAM/ML) .73005 11 .72625 11
REFRACTIVE INDEX 1.41189 11 1.40967 11
SURFACE TENSION 23.83 (8)(60) 23.37 11
VISCOSITY (CS) 1.268 (8)(60) 1.004 11
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
P 1 10 30 40 100 400 760 REF
T 17.1 55.4 84.6 108.0 149.9 173.0 21
VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P

EQUATION 1 7.4203 -1824.08 228.73 -.77 40.

EQUATION 2 61.872 -7665.7 -6.25 24.8797 -.65 40.
FLASH POINT(DEG C) (CC) REF (OC) REF 46. 1.3.6 44. (8)(9)(L) 44. 4
FLAMMABLE LIMITS LOWER UPPER

VOL PER REF

.66 AT 80 C 14(U) 5.0 AT 80 C 14(U)

.7 1.4 2.6 1

.78 (8)(15)(M) 5.4 3,4,6
                                                   2.6 l
5.4 3,4,6,8
                       .8 3,6,12(A)
AUTOIGNITION TEMPERATURE
                                  REF DEG C REF
1,(22)(47) 208. 3,4
(22)(23)(B) 463. (22)(23)
40(N) 236. 50
49 253. 46
       DEG C DELAY(SEC) REF
       250.
       202.
       425.
       232. 54.0
MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.2 (62)(P) 2287 (62) 1.40 (73) STOICH REF ABS MIN REF
MIN IGN ENERGY(MILLIJOULE)=
```

QUENCHING DISTANCE(CM)=

2-METHYLNONANE

| HEAT | OF C | OMBU | STIO | ٧ | | | KCAL/ | IOLE | CAL/GR/ 10563 | M REF | |
|--------------------|---------------------|------------|--------------------|---------------------------------|----------------|-------------|--------|-------------|-------------------|------------|---------|
| OF LI | QUIC |) | | | INE | (1) | 1502 | 99 | 10563 | . 11 | |
| = | | | | | | | 1618 | .71 | 11376 | . 11 | |
| HEAT | 0F V | APOR | IZAT | I ON (| 25 (| ;) | | | | | |
| | | | | | | | | | REF | | |
| | | | | | | | | .7203 | | | |
| | | | | | | | | 1.405 | | | |
| VISCO | | | | 22. | 21 | 20 | | 21.27 | 20 | | |
| VAPOR | PRE | SSUR | E(MM | HG) | | IPERA | TURE (| EG C) | DATA | | |
| Ρ | 1 | | 10 | | 30 | | 40 | 100 | 400 | 760 | REF |
| T | 13.5 | j. | 50.4 | | 72.4 | • | | 101.3 | | 166.8 | 20 |
| VAPO | R PR | ESSU | RE E | TAU | ION | | | ITS | | | |
| | | _ | | | | | | | | MAX ERR | |
| | | | | | | | | 8.98 | | | 100. |
| EQUAT | ION | 2 | 72.80 | 36 | -81 | 85.9 | | 7.84 | 11.0682 | .01 | 30 |
| FLASH | POI | NT (D | EG C |) | (CC) | R | EF | | (OC) REF | | |
| | | | | | | | | | | | |
| FI Am m | ARI F | - 1 IM | | | WFR | | | | | | |
| Flamm | IABLE | LIM | VOL | PER | R | EF ((DD) | | | UPPER L PER RE | | |
| | | | VOL 0. | PER .75 | 6 6 | EF | | | | F | |
| FLAMM | GNIT | ION | VOL O. | PER 75 | R 6 | EF (DD) | | V 01 | L PER RE | | |
| | GNIT DEG | ION C D | VOL O. TEMPE | PER 75 | URE) R | EF | | V 01 | | | |
| I | GNIT DEG 214. | ION C D | TEMPE ELAY | PER 75 ERAT SEC | URE) R | EF | | VOI | L PER RE | | JEL |
| AUTOI | GNIT DEG 214. | ION C D | TEMPE ELAY | PER 75 ERAT SEC | URE) R | EF | TEMP (| DEG K) | L PER RE | PERCENT FL | JEL |
| AUTOI | GNIT DEG 214. | ION C D | TEMPE ELAYO | PER 175 RAT SEC 2.0 | URE A | EF 9 | TEMP (| VOI | L PER RE | PERCENT FL | JEL |

3-METHYLNONANE

| SYNONYMS. FORMULA= C10 | | C/H= | 5.416 | MW= 142.28 | 37 VD= 4. | 9064 | |
|-------------------------------|----------|---------|---------|------------|------------------|-------|------|
| HEAT OF COMBI | ISTION | | KCA | L/MOLE | CAL/GRAM | REF | |
| OF LIQUID | | INET |) 15 | 03.67 | 10568. | 11 | |
| HEAT OF VAPOR | RIZATIO | |) | | 11381. | | |
| | | | | 30 C | | | |
| DENSITY (GRAI | 4/ML) ." | 7334 | 11 | .7258 | 20 | | |
| REFRACTIVE I | IDEX 1 | .4125 | 11 | 1.4080 | 20 | | |
| SURFACE TENS: VISCOSITY (C | 5) | | 20 | 21.93 | 20 | | |
| VAPOR PRESSU | RECHM HO | G)-TEM | | | | | |
| P 1 | | | | | | | |
| T 15.7 | 52.5 | 74.4 | | 103.1 | | 167.8 | 20 |
| VAPOR PRESSI | JRE EQUA | ATION (| COEFFIC | LENTS | 0 | | AT P |
| EQUATION 1 | | | 9.48 | 209.36 | U | 53 | 100. |
| EQUATION 2 | 72.678 | -82 | 77.7 | -7.77 | 10.1028 | | |
| FLAMMABLE LIP | VOL P | _ | EF | | UPPER PER REF | | |
| AUTOIGNITION DEG C (| | | EF | DE | G C REF | | |
| | | | | | | | |

4-METHYLNONANE

| ACAT OF COMO | | | | ~ | | 7 VD= 4 | | |
|--------------------------------------|-----------------------------|--------------------------------|--------------|-------|---------|--------------|------------|---------|
| HEAT OF COMBU | | | | | | | | |
| OF LIQUID | | | | | | 10569. | | |
| HEAT OF VAPOR | | | C) | 101 | | 11382. | | |
| | | | | EF | 30 C | | | |
| DENSITY I GRAM | | | | | | | | |
| REFRACTIVE IN | | | | | | | | |
| SURFACE TENSI VISCOSITY (CS | 5) | 22.72 | 2(| 0 | 21.77 | 20 | | |
| VAPOR PRESSUR | EIMM | | | | | | | |
| P 1 | | | | | | | 760 | REF |
| T 14.3 | | | | | | | 165.7 | 20 |
| VAPOR PRESSU | IRE EQ | UATIO | N COE | FFICI | | | | |
| 50 | A | | 8 | | C | D | MAX ERR | |
| EQUATION 1 | 7.132 | 2 -1 | 593.00 | 5 | 209.09 | 10 0404 | 51 | |
| EQUATION 2 | | | | | | 10.8480 | .01 | |
| | | . • | • | | | | | |
| | | | | | • | OC) REF | | |
| FLAMMABLE LIM | | | | | | UPPER | | |
| FLAMMABLE LIM | VOL | LOWE PER 75 | REF | | | | | |
| | vet 0. | PER 75 | REF 8(DD) | | | UPPER | | |
| FLAMMABLE LIM AUTOIGNITION DEG C D | VOL O. TEMPE | PER 75 RATUR | REF 8(DD) | | VOL | UPPER | | |
| AUTOIGNITION DEG C D | VOL O. TEMPE ELAY(| PER 75 RATUR SEC) | REF 8(DD) | | VOL | UPPER PER RE | F | |
| AUTOIGNITION DEG C D | VOL O. TEMPE ELAY(| PER 75 RATUR SEC) | REF 8(DD) | | VOL | UPPER PER RE | PERCENT FU | JEL |
| AUTOIGNITION | TEMPE ELAY(| PER 75 RATUR SEC) | REF 8(DD) | | VOL DE | UPPER PER RE | PERCENT FU | JEL |

5-METHYL NONANE

| SYNONYMS. FORMULA= C10H22 | C/H= 5 | | | | 4.9064 | |
|--|-----------|---------|--------------|---------|--------------|---------|
| HEAT OF COMBUSTIC | | | | | | |
| HEAT OF VAPORIZAT | ION(25 C) | | 9.53 | 11382 | . 11 | |
| | 30 6 | 000 | 30 C | REF | | |
| DENSITY (GRAM/ML) | .7326 | 11 | . 7250 | 20 | | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | | | 21.83 | 20 | | |
| VAPOR PRESSUREIMM | HG)-TEMP | ERATURE | | | | |
| P 1 10 T 13.8 50.3 | 72.0 | | 100.6 | | 760 165.1 | |
| VAPOR PRESSURE EG | DUATION C | OEFFICI | ENTS | | MAY COD | AT D |
| A EQUATION 1 7.12: | 32 -1586 | .43 | 208.92 | U | .52 | 10. |
| EQUATION 2 73.8 | 10 -827 | 3.5 | -7.95 | 0.9456 | .02 | 10. |
| FLAMMABLE LIMITS VOL | LOWER | F | VOL (| UPPER | | |
| AUTOIGNITION TEMPE | RATURE | | | | | |
| DEG C DELAY | SEC) RE | F | DEG | C REF | | |
| MAX FLAME VEL(CM/S | SEC) FL | AME TEM | P(DEG K) | VOL | PERCENT F | UEL |
| | | CTOICH | REF | 405 40 | N 055 | |
| | | | | | | |

2.3-DIMETHYLOCTANE

| HEAT | OF CUM | BUSTIO | N | KCAL | /MOLE | CAL/GRAP | REF | |
|--------|--------|--------------|--------------|------|-----------------|----------|---------|------|
| OF L1 | Q110 | | (NET | 150 | 3.42 | 10566. | 11 | |
| | | | (GROSS) | 161 | 9.14 | 11379. | 11 | |
| HEAT | OF VAP | | 10N125 C | | | | | |
| | | | | | 30 C | | | |
| DENSI | TY (GR | (AM/HL) | .7379 | 11 | .7298 | 20 | | |
| REFRA | CTIVE | INDEX | 1.4149 | 11 | .7298 1.4102 | 20 | | |
| SURFA | CE TEN | ISION | 23.39 | 20 | 22.41 | 20 | | |
| | | | HG)-TEM | | (DEG C) D | | | |
| | | | | | 100 | | 760 | REF |
| T | | | | | 98.0 | | | |
| | | CILDE E | DUATION (| | ENTC | | | |
| | | A | (| 3 | 215.95 | D | MAX ERR | AT P |
| TAUPS | ION 1 | 7.09 | 74 -1600 | 96 | 215.95 | | 46 | 100. |
| EQUAT | ION 2 | 65.4 | 54 -765 | 55.0 | -6.80 | 9.8710 | 01 | 30. |
| LAJII | POINT | IDEG C | 1 (CC) | REF | ((| OC) REF | | |
| , LASI | POINT | COEG C |) (CC) | REF | ((| OC) REF | | |
| | | .IMITS | Lower | | | UPPER | | |
| FLAPM | ABLE L | IMITS VOL | LOWER PER RE | : F | vol | UPPER | | |

2.7-DIMETHYLOCTANE

| HEAT | OF C | OMBU | STI | ON | | | | KC | AL/H | OLE | (| AL/GRA | M F | REF | |
|-------|--------|--------|--------------|------------|------------------|---------|-----|-------|-------|-------|------|--------------------|------|-----|-----|
| OF LI | QUID | | | | | INE | TI | 15 | 501. | 62 | | 10553. | | 11 | |
| | | | | | | | | | 517. | 34 | | 11367. | | 11 | |
| HEAT | OF V | APOR | IZA | 110 | ON | 25 | C) | | | | | | | | |
| | | | | | | | | | | 30 C | | | | | |
| DENSI | TYI | GRAM | /ML |) | . 72 | 42 | | 11 | | .7162 | L. | 20 | | | |
| | | | | | | | | | | 1.403 | | | | | |
| VISCO | | | | | 21. | 13 | | 20 | | 20.79 | | 20 | | | |
| | PRES | | E(M | ——- M I | HG) | -1E | HPE | RATUR | REIDI | EG C) | DATA | · | | | |
| | | | | | | | | | | | | 400 | | | |
| T | 6.3 | | 42. | 3 | | | | 71. | 2 | 93.9 | 1 | 36.0 | 159. | 7 | 21 |
| VAPO | r. Pre | E S SU | _ | | _ | | | | | rs | | _ | | | = |
| | | | . ^ | | | | В | • • | (| | | D | | | |
| EQUAT | TON 2 | | 0 . 8 0 4 | 97. 05/ | 5 L | - [4 | 470 | 23 | 20 | 7.93 | 5.2 | 9809 | | | 10. |
| GUAI | TOIL C | | | | | | 010 | 7 | | | | | | | |
| FLASH | | | | | | | | | | | | | | | |
| | POIN | NT (D | EG I | C) | LO | I CC | REF | REF | | | (OC) | | | | |
| FLAMM | POIN | LIM | EG ITS | C) | LOI PER 75 | URE | REF | REF | | vo | (OC) | REF PER R RE | | | |

4.5-DIMETHYLOCTANE

| HEAT C | F COM | BUSTIO | N | KCA | L/MOLE | CAL/GRAI | A REF | |
|------------------|--------------------------|-------------------------|-------------------------|------------------------|-----------------|------------------|------------|---------|
| OF LIC | DIU | | INE | T) 15 | 04.22 | 10572. | 11 | |
| | | | | | 19.94 | 11385. | 11 | |
| HEAT (| OF VAPO | OR IZAT | 10N(25 | C) | | | | |
| | | | | | 30 C | | | |
| | | | | | .7394 | | | |
| | | | | | 1.4145 | | | |
| | SE TENS | | 24.60 | 20 | 23.62 | 20 | | |
| | | | | | E(DEG C) D | | | |
| | | | | | 100 | | | |
| T | 8.3 | 45.4 | 67. | 5 | 96.5 | | 162.1 | 20 |
| VAPOR | R PRES | SURE E | MOITAU | COFFEIC | IENTS | | | |
| | | A | | В | C 217.59 | D | MAX ERR | AT P |
| EQUATI | ON 1 | 7.11 | 50 -16 | 07.41 | 217.59 -6.07 | 2 5004 | .68 | 10. |
| EQUALI | ION Z | | | | -6.07 | | 11 | 30 |
| | | | | | | | | |
| | | | | | | | | |
| FL AMMA | ABLE L | IMITS VOL | LOWER PER | REF | vol | UPPER PER REF | | |
| | | V 0L | PER | REF | VOL | UPPER PER REF | : | |
| AUTO1 G | | VOL | PER | REF | VOL | PER REF | : | |
| AUTO1G | | VOL | PER ERATURE | REF | VOL | PER REF | : | |
| AUTO16 0 3 | SNITION DEG C | VOL N TEMPE DELAY | PER ERATURE (SEC) | REF REF 50 | VOL | PER REF | | JEL |
| AUTOIG 0 3 | SNITION DEG C | VOL N TEMPE DELAY | PER ERATURE (SEC) | REF SO FLAME TE | VOL DE(| PER REF | PERCENT FL | |
| AUTOIG D 3 | SNITION DEG C BBB. | VOL N TEMPS DELAY | PER ERATURE (SEC) | REF SO FLAME TER | VOL DE(| PER REF | PERCENT FL | JEL |

3-ETHYLOCTANE

| SYNONYMS. FORMULA= C10H22 | C/H= 5 | 5.416 MW | - 142.287 | VD= 4 | . 4064 | |
|---|-------------------------|------------------------|--------------------|------------------------------|-------------------|------------------|
| HEAT OF COMBUST | 10N (NET) (GROSS) | KCAL/I 1504 1620 | MOLE .47 .19 | CAL/GRAI 10574. 11387. | H REF 11 11 | |
| HEAT OF VAPORIZA | ATTONI25 CT |) | | | | |
| DENSITY (GRAM/MI | 26 C L1 •7399 | REF 11 | 25 C .7359 | REF 11 | | |
| REFRACTIVE INDE: SURFACE TENSION VISCOSITY (CS) | (1.4156 | 11 | 1.4136 | 11 | | |
| VAPOR PRESSURE(| | | | | | |
| P 1 1(| 0 30 | | | | 166.5 | 11 |
| VAPOR PRESSURE | | OEFFICIE | | | | |
| EQUATION 1 EQUATION 2 | | | | | | |
| FLASH POINTIDEG | C) (CC) | REF | (0) | C) REF | | |
| | | | | | | |
| FLAMMABLE LIMITS VO | S LUWER OL PER RE | | VOL (| JPPER PER REF | : | |
| | | | | | | |
| | | | | | | |
| AUTOIGNITION TEM DEG C DELA 235. | | | DEG | C REF | | |
| DEG C DELA | AY(SEC) RE 50 | | | | | FU EL |

4-ETHYLOCTANE

| FORMULA= | | | | | | | | | | |
|--|---------|-----------|------------|-------|------|----------------------------|-----------------|-------------------------|------------------------|------|
| | | | (GRU | 221 | | CAL/MG 1504.6 1620.3 |)LE 51 53 | CAL/G 10574 11386 | RAM REF 11 3. 11 | |
| HEAT OF V | | | | | | | | | | |
| | C | | 50 C | | REF | | 25 C | REF | | |
| DENSITY (REFRACTIV SURFACE T VISCOSITY | (CS) | N | | | | | | 11 | | |
| VAPOR PRE | SSURE | (MM | HG)-T6 | EMP | RAT | UREIDE | G C) D | ATA | | |
| T | | | | | | | | | 760 163.6 | 11 |
| VAPOR PR | | E EQ | | 4 C | DEFF | ICIENT | 'S | | | |
| EQUATION EQUATION | 2 | A | | | | (| | U | MAX ER | KAIP |
| FLASH POI | INT (DE | G C) | 100 | :) | RE | F | ((| OC) RE | : F | |
| | | | | | | | | UPPER | | |
| CHMADE | | | PER | | | | | PER A | | |
| AUTOIGNIT | ION T | EMPEI | RATURE | : | | | | | | |
| DEG 237. | C DE | | SEC) | | | | DEC | G C RE | F | |
| MAX FLAME | VEL (| CM/SI | EC) | FLA | ME : | TEMP(D | | V 0L | PERCENT (| FUEL |
| | | | L I JOUL | | | ICH R | EF | ABS M | IN REF | |

2.2.6-TRIMETHYLHEPTANE

| HEAT OF COME | SUSTIO | N . | KCAL | ./MOLE | CAL/GRA | M REF | |
|---|-------------------|--------------------|---------------------|--------|---------|---------|------|
| OF LIQUID | | INE | T) 149 | 9.68 | 10540. | 11 | |
| | | | | 5.40 | 11353. | 11 | |
| HEAT OF VAPO | | | - | | | | |
| | | 20 C | REE | 30 C | RFF | | |
| DENSITY (GRA | M/ML) | .7238 | 11 | .7117 | 20 | | |
| DENSITY (GRA Refractive i Surface tens | NDEX | 1.4078 | 11 | 1.4012 | 20 | | |
| SURFACE TENS VISCOSITY (C | SI ON (S) | 21.17 | 20 | 20.27 | 20 | | |
| VAPOR PRESSU | REIMM | HG1-TE | | | | | |
| P 1 | 10 | 30 | 40 | 100 | 400 | 760 | REF |
| T -1.3 | 34.6 | 56. | 2 | 84.3 | | 148.2 | 20 |
| VAPOR PRESS | URE E | UATION | COFFEICI | ENTS | | | |
| | A | | 8 | 210 21 | D | MAX ERK | AI P |
| EQUATION 1 EQUATION 2 | 62-64 | (4 -17 15 -7 | 43.70 211.8 | -6-61 | 6.7673 | 04 | 30. |
| | | | | •••• | | | |
| FLASH POINT (| | | | | | | |
| FLASH POINT (| DEG CI | LOWER |) REF | ((| UPPER | | |
| FLASH POINT (FLAMMABLE LI AUTOIGNITION DEG C | MITS VOL O. | LOWER PER 75 | REF REF 8(DD) | VOL | UPPER | | |

2.5.5-TRIMETHYLHEPTANE

| | OF COM | BUSTION | | KCAL | ./MOLE | CAL/GRAI | M REF | |
|----------|---------|-----------|--------------------|---------|--------------------------|----------|---------|------|
| OF LI | OUID | | (NET) | 150 | 0.89 | 10548. | 11 | |
| HFAT (| OF VAR | M I ZAT I | (GROSS) | 161 | 16.61 | 11362. | 11 | |
| | | | | | | | | |
| | | | 50 C | REF | 30 C | REF | | |
| DENSI | TY (GR | M/ML) | .7400 | 11 | .7288 1.4088 22.29 | 20 | | |
| REFRA | CTIVE | INDEX | 1.4149 | 11 | 1.4088 | 20 | | |
| VISCO | SITY ((| :S) | | | | | | |
| VAPOR | PRESSU | RECHM | HG)-TEMP | ERATURE | (DEG C) DA | ATA | | |
| P | 1 | 10 | 30 | 40 | 100 | 400 | 760 | REF |
| T | - 1 | 36.6 | 58.5 | | 100 87.3 | | 152.8 | 20 |
| MARO | | | HATTON C | ~~~~~~ | ENTC | | | |
| | | A | 9 | | C 218.46 -6.51 | D | MAX ERR | AT P |
| EQUAT | ION I | 7.007 | 1 -1531 | -61 | 218.46 | | .51 | 10. |
| EQUAT | ION Z | 62.99 | 8 -723 | 1.6 | -6.51 | 8.8622 | 02 | 30. |
| , E #311 | 701111 | | (60) | NEI | (0 | ,c, kei | | |
| FLAMM | | PITS | LOWER | | V 0L | LIPPER | | |
| | | | | | | | | |
| | | _ | RATURE SEC) RES | | DEG | C REF | | |

4-ISOPROPYLHEPTANE

| FURMULA= CI | 0H22 | C/H= | 5.416 | MW= 142.28 | | 4.9064 | |
|--|----------------------------------|----------------|------------|-------------|----------------|---------|------|
| HEAT OF COM OF LIQUID | BUSTION | V | KC | AL/MOLE | | | |
| OF LIQUID | | (NE | r) 1 | 504.36 | 1057 | 3. l' | |
| | | (CKOS | 5) 10 | 620.08 | 1138 | 6. 11 | |
| HEAT OF VAP | | | | | | | |
| DENSITY (GR REFRACTIVE SURFACE TEN | | 20 C | REF | 30 C | REF | | |
| DENSITY (GR | AM/ML) | .7392 | 11 | . 733 | 20 | | |
| KEPKALIIVE | INDEX | 1.4177 | 11 | 1.412 | 20 | | |
| AISCOSITA (| CS) | | | | | | |
| VAPOR PRESS | | | | RE(DEG C) D | | | |
| P 1 | 10 | 30 | 40 | 100 | 400 | 760 | REF |
| f 6.9 | 43.8 | 65. | 3 | 94.7 | | 160.0 | 20 |
| VAPOR PRESEQUATION 1 | SURE | UATION | COEFFIC | CIENTS | D | MAY FOD | AT D |
| FOUATION 1 | 7-110 | 15 -159 | 27.27 | 217.71 | U | .61 | 10. |
| EQUATION 2 | 62.29 | 11 -74 | 29.9 | -6.35 | 5.9639 | 12 | 30. |
| | 1020 () | |) REF | () | OC) RI | EF | |
| FLAMMABLE L | IM I T S | LOWER | | | UPPER | | |
| | IM I T S | LOWER | | | UPPER | | |
| FLAMMABLE L | IMITS VOL | LOWER PER F | REF | voL | UPPER PER 1 | REF | |
| FLAMMABLE L AUTOIGNITION DEG C | IMITS VOL | LOWER PER F | EF | voL | UPPER PER 1 | REF | |
| FLAMMABLE L | IMITS VOL | LOWER PER F | REF | voL | UPPER PER 1 | REF | |
| FLAMMABLE L AUTOIGNITION DEG C | IMITS VOL N TEMPE DELAY | LOWER PER F | REF BEF | VOL DEC | UPPER PER I | REF | |
| FLAMMABLE L AUTOIGNITIO DEG C 288. | IMITS VOL N TEMPE DELAY | LOWER PER F | LAME TE | VOL DEC | UPPER PER I | REF | |

UNDECANE

| SYNONYMS. HENDECANE FORMULA= C11H24 C/H= 5. | .462 MW= 156.314 | • VD= 5.1 | 901 | |
|---|------------------|-----------|----------|------|
| HEAT OF COMBUSTION | | | | |
| OF LIQUID (NET) | | | | |
| | 1775.24 | | | |
| HEAT OF VAPORIZATION(25 C) | 7.72 | | | |
| | REF 30 C | | | |
| DENSITY (GRAM/ML) .74026 | | | | |
| REFRACTIVE INDEX 1.41725 | 8(Q) 1.41284 | 20 | | |
| SURFACE TENSION 24.66 | (8)(60) 23.80 | 20 | | |
| VISCOSITY (CS) 1.601 | (8)(60) | | .5977 | 20 |
| VAPOR PRESSURE(MM HG)-TEMPE | | . T A | | |
| P 1 10 30 | | | 760 | REF |
| T 31.4 72.2 | | | | |
| | | | | |
| VAPOR PRESSURE EQUATION CO | | _ | MAM 555 | |
| A B | C | D | MAX ERR | AIP |
| EQUATION 1 7.6891 -2091. EQUATION 2 36.853 -6768 | 240.00 | 4 1301 | 43 | 100. |
| EQUALION 2 30.5.5 -0100 | -2170 | -0,1371 | ,0 | |
| FLASH POINT(DEG C) (CC) | | | | |
| | 65 | 5. (8)(9 | | |
| | 65 | 3,4 | | |
| | | | | |
| FLAMMABLE LIMITS LOWER | | UPPER | | |
| VOL PER REF | VOL | PER REF | | |
| | | | | |
| | | | | |
| | | | | |
| AUTOIGNITION TEMPERATURE | | | | |
| DEG C DELAY(SEC) REF | DEC | C REF | | |
| | | | | |
| | | | | |
| | | | | |
| MAX FLAME VEL (CM/SEC) FLA | ME TEMP(DEG K) | VOL PE | RCENT FL | JEL |
| | STOICH REF | ABS MIN | DEE | |
| MIN IGN ENERGY(MILLIJOULE)= | | WD2 WIN | KET | |
| DUENCHING DISTANCE(CM)= | | | | |
| position of a mile tone | | | | |

2-METHYLDECANE

SYNONYMS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION (25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA 1 10 30 40 100 400 760 REF VAPOR PRESSURE EQUATION COEFFICIENTS D MAX ERR AT P A B C EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF FLAMMABLE LIMITS LOWER UPPER VOL PER REF UPPER AUTOIGNITION TEMPERATURE DEG C REF DEG C DELAY(SEC) REF 231. 50 MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM)=

DODECANE

| REF (8)(60) (8)(60) (8)(15) 150 C .5128 760 216.2 | REF |
|--|-----------------|
| (8) (60) (8) (15) 150 C .5128 760 216.2 | REF |
| (8)(15) 150 C .5128 760 216.2 | 20 REF 21 |
| .5128 760 216.2 | 20 REF 21 |
| .5128 760 216.2 | 20 REF 21 |
| .5128 760 216.2 | 20 REF 21 |
| 760 216.2 | REF 21 |
| 760 216.2 | REF 21 |
| 760 216.2 | REF 21 |
| 216.2 | 21 |
| 216.2 | 21 |
| | |
| MAX FRR | |
| | AT P |
| MAX ERR 1.00 | 10. |
| 1.00 | 40. |
| | |
| | |
| | |
| | |
| | |
| - | |

ISODODECANE

SYNONYMS. FURMULA= C12H26 C/H= 5.500 MN= 170.341 VD= 5.8738 KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) 25 C REF DENSITY (GRAM/ML) REFRACTIVE INDEX 1.4170 51 SURFACE TENSION VISCOSITY (CS) ______ VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINTIDEG C) (CC) REF (OC) REF FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C REF DEG C DELAY(SEC) REF 500. 46 500. 51 40(N) 534. MAX FLAME VEL (CM/SEC) FLAME TEMP (DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY (MILLIJOULE) = QUENCHING DISTANCE(CM)=

1.1-DINEOPENTYLETHANE

SYNONYMS. FORMULA= C12H26 C/H= 5.500 MW= 170.341 VD= 5.8738 KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) 25 C REF DENSITY (GRAM/ML) REFRACTIVE INDEX 1.4169 51 SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) UNIN P 1 10 30 40 100 400 760 REF 177.0 51(AQ) VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF FLAMMABLE LIMITS LOWER UPPER VOL PER REF AUTOIGNITION TEMPERATURE DEG C REF DEG C DELAY(SEC) REF 500. 51 MAX FLAME VELICM/SEC) FLAME TEMPIDEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE (CM)=

TRIDECANE

| SYNONYMS. Formula= C1 | 3H28 | C/H= 5 | .533 MW= | 184.36 | 8 VD= 6. | 3575 | |
|--------------------------|---------|-------------------|----------------|--------|------------------|---------|------|
| HEAT OF COM | BUSTIO | - | | | C AL /CDAM | 0 | |
| | | | | | | | |
| OF LIQUID | | | | | | | |
| MEAT OF VAR | 001147 | | | | 11323. | | |
| HEAT OF VAP | | | | | 79.10 | | |
| | | | | | REF | 170 C | REF |
| DENSITY (GR | | | | | | | |
| REFRACTIVE | | | | | | | |
| SURFACE TEN | | | | | | | |
| VISCOSITY (| CS) | 2.487 | (8)(60) | | | .5043 | 20 |
| VAPOR PRESS | | | | | | | |
| P 1 | 10 | 30 | 40 | 100 | 400 | 760 | REF |
| T 59.4 | | | 137.7 | 162.5 | 209.4 | 234.0 | |
| VAPOR PRES | SURE EC | DUATION C | | | | | |
| VAPOR TRES | JUNE CE | P | ULIT TO LET | r | n | MAY FRR | AT P |
| FOLIATION 1 | 8.084 | -2549 | . 58 25 | 5.95 | J | -1.99 | 100. |
| EQUATION 1 EQUATION 2 | 25 70 | 14 -479 | 7.7 | 91 - | - A . 2571 | -1.73 | 100. |
| | | | | | -0.27/1 | -1.75 | |
| FLASH POINT | (DEG C) | | REF (8)(9)(| | OC) REF | | |
| FLAMMABLE L | | | | | UPPER PER REF | | |
| AUTOIGNITIO DEG C | | RATURE SEC) RE | F | DEG | C REF | | |
| MAX FLAME V | | | STOICH | | VOL P | | JEL |
| DUENCHING D | | | - | | | | |

TETRADECANE

| FORMULA = C14 | н 30 | C/H= | 5.5 | 61 MI | - 198. | 395 VC | - 6. | 8412 | |
|-------------------------------|---------|---------|-----------|---------------|--------------|-------------------|--------|------------|--------|
| HEAT OF COME OF LIQUID | BUSTION | • | | KCAL | MOLE | CAL | /GRAM | REF | |
| OF LIQUID | | INE | T) | 2089 | 5.94 | 10 | 514. | (8)(60) |) |
| | | IGROS | 121 | 224 | 3.74 | 11 | 309. | (8)(60 |) |
| HEAT OF VAPO | DRIZATI | ON (25 | C) | 1 | 1.37 | 9 | 7.31 | (8)(15 |)(R) |
| | | 20 C | RI | EF | 30 | C RE | F | 190 C | |
| DENSITY (GRA | | | | | | | | | |
| REFRACTIVE | | | | | | | | | |
| SURFACE TENS | SION | 26.56 | | 8)(60 | 25.7 | 20 |) | | |
| VISCOSITY (| | 3.061 | | 8)(60) |) | | | .4946 | 20 |
| VAPOR PRESSU | | | | | | | | 740 | |
| P 1 | 10 | 30 | , | 40 | 100 | 5 224 | | 760 | KEF |
| T 76.4 | 120.7 | | | 192. <i>1</i> | | | | ()(•) | |
| VAPOR PRESS | SURE EQ | UATION | COE | FFICI | ENTS | _ | | MAY 505 | |
| EQUATION 1 | - A | | B | ep. | C | D | | MAX EKK | ALP |
| EQUALION L | 52.40 | 8 -21 | 20.7 | 5 4 | 205.43 | 27 71 | 4.3 | 3.49 | 10. |
| EQUATION 2 | 72.00 | | | , | - 02 | | | 2 • 30 | |
| FLASH POINT | DEG CI | (CC | .) (| REF | | (00) | REF | | |
| | | 100 | • | 1,3,4 | | 121. | (8)(9 | 9)(L) | |
| FLAMMABLE LI | VOL | | REF | | | UPPE OL PER | R | | |
| AUTOIGNITION DEG C 202. | | | | | | DEG C 232. | REF 50 | | |
| MAX FLAME VE | L (CM/S | EC) | FLAME | TEMP | OLDEG K |) | VOL PE | RCENT FU | EL |

HEXADECANE

| OF LIQUID (GROSS) 2556.00 (GROSS) 2566.00 (GROSS) 2556.00 (GROSS) 2566.00 (GROSS) 2566 | HEAT OF COMBUSTIO | N | KCALZMO | F | CAL/GRAI | A REF | |
|--|---|--|-----------------|----------------------|--------------------|-----------|---------------------------------------|
| DENSITY (GRAM/ML) .77346 9(Q) .76648 20 DENSITY (GRAM/ML) .77346 9(Q) .76648 20 SURFACE TENSION 27.47 (8)160) 26.7 20 VISCOSITY (CS) 4.492 (8)160) .4816 20 VAPOR PRESSURE (MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF I 105.3 149.8 181.3 208.5 258.3 287.5 21 VAPOR PRESSURE EQUATION COEFFICIENTS B C D MAX ERR AT P EQUATION 1 6.9668 -1789.71 151.36 5.70 10. EQUATION 2 75.658 -11479.8 -7.64 -92.5371 -3.56 40. FLASH POINT(DEG C) (CC) REF (OC) REF 135. 70(K) FIRE POINT (DEG C) = 140.5 70 FLAMMABLE LIMITS LOWER VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF OEG C REF 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 IAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | OF LIQUID | (NET) | 2377.1 | 6 | 10498. | (8)(60 |) |
| DENSITY : GRAM/ML) .77346 9(Q) .76648 20 DENSITY : GRAM/ML) .77346 9(Q) .76648 20 SURFACE TENSION 27.47 :83160) 26.7 20 VISCOSITY (CS) 4.492 (83160) .4816 20 VAPOR PRESSURE (MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF I 105.3 149.8 181.3 208.5 258.3 287.5 21 VAPOR PRESSURE EQUATION COEFFICIENTS B C D MAX ERR AT P EQUATION 1 6.9668 -1789.71 151.36 5.70 10. EQUATION 2 75.658 -11479.8 -7.64 -92.5371 -3.56 40. FLASH POINT(DEG C) (CC) REF (OC) REF 135. 70(K) FIRE POINT (DEG C) = 140.5 70 FLAMMABLE LIMITS LOWER VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) SEF DEG C REF 232. 50 235. (221(50)(S) 205. 4.6 241. 70 AUX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | | (GROSS) | 2556.0 | Ö | 11287. | (8)(60 |) |
| 20 C REF 30 C REF 225 C REF REFNACTIVE INDEX 1.43536 81(9) .76648 20 REFNACTIVE INDEX 1.43553 (8)1(60) 1.43036 20 SURFACE TENSION 27.47 (8)1(60) 26.7 20 VISCOSITY (CS) 4.492 (8)1(60) .4816 20 VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF I 105.3 149.8 181.3 208.5 258.3 287.5 21 VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 6.9668 -1789.71 151.36 5.70 10. EQUATION 2 75.658 -11479.8 -7.64 -92.5371 -3.56 40. FLASH POINT(DEG C) (CC) REF (OC) REF 135. 70(K) FIRE POINT (DEG C) = 140.5 70 FLAMMABLE LIMITS LOWER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF OEG C REF 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 TAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | HEAT OF VAPORIZAT | ION(25 C) | 12.2 | 8 | 54.23 | (9)(15 |) (R) |
| REFRACTIVE INDEX 1.43553 (B)160) 1.43036 20 SURFACE TENSION 27.47 (B)160) 26.7 20 VISCOSITY (CS) 4.492 (B)160) .4816 20 VAPOR PRESSURE (MM HG)-TEMPERATURE (DEG C) DATA P 1 10 30 40 100 400 760 REF I 105.3 149.8 181.3 208.5 258.3 287.5 21 VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 6.9668 -1789.71 151.36 5.70 10. EQUATION 2 75.658 -11479.8 -7.64 -92.5371 -3.56 40. FLASH POINT(DEG C) (CC) REF (OC) REF 135. 70(K) FIRE POINT (DEG C) = 140.5 70 FLAMMABLE LIMITS LOWER VOL PER REF VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF VOL PER REF AUTOIGNITION TEMPERATURE 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | | 20 C | REF | 30 C | REF | | REF |
| SURFACE TENSION 27.47 (8)(60) 26.7 20 VISCOSITY (CS) 4.492 (8)(60) .4816 20 VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF T 105.3 149.8 181.3 208.5 258.3 287.5 21 VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 6.9668 -1789.71 151.36 5.70 10. EQUATION 2 75.658 -11479.8 -7.64 -92.5371 -3.56 40. FLASH POINT(DEG C) (CC) REF (OC) REF 135. 70(K) FIRE POINT (DEG C) = 140.5 70 FLAMMABLE LIMITS LOWER VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 AMX FLAME VELICM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | DENSITY (GRAM/ML) | .77346 | 9(0) | .76648 | 20 | | |
| VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF I 105.3 149.8 181.3 208.5 258.3 287.5 21 VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 6.9668 -1789.71 151.36 5.70 10. EQUATION 2 75.658 -11479.8 -7.64 -92.5371 -3.56 40. FLASH POINT(DEG C) (CC) REF (OC) REF 135. 70(K) FIRE POINT (DEG C) = 140.5 70 FLAMMABLE LIMITS LOWER VOL PER REF VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF VOL PER REF AUTOIGNITION TEMPERATURE 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 TAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | REFRACTIVE INDEX | 1.43553 | (8)(60) | 1.43036 | 20 | | |
| VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF I 105.3 149.8 181.3 208.5 258.3 287.5 21 VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 6.9668 -1789.71 151.36 5.70 10. EQUATION 2 75.658 -11479.8 -7.64 -92.5371 -3.56 40. FLASH POINT(DEG C) (CC) REF (OC) REF 135. 70(K) FIRE POINT (DEG C) = 140.5 70 FLAMMABLE LIMITS LOWER VOL PER REF VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF VOL PER REF AUTOIGNITION TEMPERATURE 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 TAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | SURFACE TENSION | 27.47 | (8)(60) | 26.7 | 20 | | 111 |
| VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF I 105.3 149.8 181.3 208.5 258.3 287.5 21 VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 6.9668 -1789.71 151.36 5.70 10. EQUATION 2 75.658 -11479.8 -7.64 -92.5371 -3.56 40. FLASH POINT(DEG C) (CC) REF (OC) REF 135. 70(K) FIRE POINT (DEG C) = 140.5 70 FLAMMABLE LIMITS LOWER VOL PER REF VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF VOL PER REF AUTOIGNITION TEMPERATURE 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 TAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | VISCOSITY (CS) | 4.492 | (8)(60) | | | .4816 | 20 |
| T 105-3 149-8 181-3 208-5 258-3 287-5 21 VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 6-9668 -1789-71 151-36 5.70 10. EQUATION 2 75-658 -11479-8 -7-64 -92-5371 -3-56 40. FLASH POINT(DEG C) (CC) REF (OC) REF 135- 70(K) FIRE POINT (DEG C) = 140-5 70 FLAMMABLE LIMITS LOWER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF 232- 50 235- (22)(50)(S) 230- 66-0 49 235- 46(S) 205- 4-6 241- 70 TAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40-7 (62)(P) 2284 (62) 0.92 (73) | VAPOR PRESSUREIMM | HG1-TEMPE | RATUREIDE | G C) DA | TA . | | |
| VAPOR PRESSURE EQUATION COEFFICIENTS A | P 1 10 | 30 | 40 | 100 | 400 | 760 | REF |
| A B C D MAX ERR AT P EQUATION 1 6.9668 -1789.71 151.36 5.70 10. EQUATION 2 75.658 -11479.8 -7.64 -92.5371 -3.56 40. FLASH POINT(DEG C) (CC) REF (OC) REF 135. 70(K) FIRE POINT (DEG C) = 140.5 70 FLAMMABLE LIMITS LOWER VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | 1 105.3 149.8 | | 181.3 | 208.5 | 258.3 | 287.5 | 21 |
| FLASH POINT(DEG C) (CC) REF (OC) REF 135. 70(K) FIRE POINT (DEG C) = 140.5 70 FLAMMABLE LIMITS LOWER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 232. 51(AT) MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | VAPOR PRESSURE E | QUATION CO | EFFICIENT: | S | 0 | MAH 500 | |
| FLASH POINT(DEG C) (CC) REF (OC) REF 135. 70(K) FIRE POINT (DEG C) = 140.5 70 FLAMMABLE LIMITS LOWER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 232. 51(AT) MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | A COUNTION 1 4 C4 | 8 1300 | 71 | 3.4 | U | MAX EKR | AIP |
| FLASH POINT(DEG C) (CC) REF 135. 70(K) FIRE POINT (DEG C) = 140.5 70 FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PER HEF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 232. 51(AT) MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | EQUATION 1 0.90 | 50 -1/89. | /1 151 | • 36 | 6371 | 5.70 | 10. |
| FIRE POINT (DEG C) = 140.5 70 FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PER HEF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 232. 51(AT) MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | EQUALION & 75.6 | | | | | -3.36 | • • • • • • • • • • • • • • • • • • • |
| FIRE POINT (DEG C) = 140.5 70 FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 232. 51(AT) MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | FLASH POINTIDEG C |) (CC) | | | | | |
| FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 232. 51(AT) MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | | 5105.06 | | | | .) | |
| FLAMMABLE LIMITS LOWER VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 232. 51(AT) MAX FLAME VELICM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | | PIKE PO | INI IDEG I | ., = 140 | 7.5 70 | | |
| AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 232. 51(AT) MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | | | | | | | |
| AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 232. 51(AT) MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | FLAMMABLE LIMITS | LOWER | | ι | IPPER | | |
| AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 232. 51(AT) MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | VOL | PER REF | | VOL F | ER REF | | |
| DEG C DELAY(SEC) REF 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 232. 51(AT) MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | | | | | | | |
| DEG C DELAY(SEC) REF 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 232. 51(AT) MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | | | | | | | |
| DEG C DELAY(SEC) REF 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 232. 51(AT) MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | | | | | | | |
| 232. 50 235. (22)(50)(S) 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 232. 51(AT) MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | | | | | | | |
| 230. 66.0 49 235. 46(S) 205. 4.6 241. 70 232. 51(AT) MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | | | | DEC | | | |
| 205. 4.6 241. 70 232. 51(AT) MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | DEG C DELAY | (SEC) REF | | | | 1501151 | |
| 232. 51(AT) MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | DEG C DELAY | (SEC) REF | | 235. | (22) | | |
| 1AX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 40.7 (62)(P) 2284 (62) 0.92 (73) | DEG C DELAY 232. 230. 66 | (SEC) REF 50 .0 49 | | 235. 235. | (22) 46(S | | |
| 40.7 (62)(P) 2284 (62) 0.92 (73) | DEG C DELAY 232. 230. 66. 205. | (SEC) REF 50 .0 49 4,6 | i | 235. 235. | (22) 46(S | | |
| 40.7 (62)(P) 2284 (62) 0.92 (73) | DEG C DELAY 232. 230. 66. 205. | (SEC) REF 50 .0 49 4,6 | i | 235. 235. | (22) 46(S | | |
| | DEG C DELAY 232. 230. 66. 205. 232. | (SEC) REF 50 .0 49 4.6 51(| AT) | 235. 235. 241. | (22) 46(S 70 | | |
| | DEG C DELAY 232. 230. 66. 205. 232. | (SEC) REF 50 .0 49 4.6 51(| AT) ME TEMP(DE | 235. 235. 241. | (22) 46(S 70 | ERCENT FL | VE L |

ISOHEXADECANE

| SYNONYMS. FORMULA= C16H34 C/H= 5.608 MW | |
|--|--|
| KCAL/ | |
| HEAT OF COMBUSTION (NET) (GROSS) | MOLE CAL/GRAM REF |
| HEAT OF VAPORIZATION(25 C) | |
| 25 C REF | 37.78 C REF |
| DENSITY (GRAM/ML) REFRACTIVE INDEX 1.4370 51 | |
| SURFACE TENSION VISCOSITY (CS) | 28 SSU 51(AR) |
| VAPOR PRESSURE(MM HG)-TEMPERATURE(| |
| P 1 10 30 40 | 100 400 760 REF 118.5 51(AS) |
| | |
| EQUATION 1 EQUATION 2 | |
| FLASH POINTIDEG C) (CC) REF | |
| FLAMMABLE LIMITS LOWER VOL PER REF | UPPER VOL PER REF |
| AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF 484. 51 | DEG C REF |
| MAX FLAME VEL(CM/SEC) FLAME TEMP STOICH MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM) = | (DEG K) VOL PERCENT FUEL REF ABS MIN REF |

OCTADECANE

| | | | .645 MW | | | | |
|-----------------------------|--------------------------|-------------------------------------|-----------------|-----------|------------------|-----------|-----------|
| HEAT OF COM | BUSTIO | N | KCAL/ | MOLE | CAL/GRAM | REF | |
| OF LIQUID | | | | | | | |
| | | (GROSS) | 2868 | . 49 | 11271. | (8) (60 |) |
| EAT OF VAP | PORIZAT | 10N(25 C) | 13. | .01 | 51.12 | (8)(15 |) (R) |
| | | 20 C | REF | 25 C | REF | 30 C | REF |
| ENSITY (GR | | | | | | | 20 |
| REFRACTIVE | | | | | (8)(T) | | |
| SURFACE TEN VISCOSITY (| CSI | | (8)(1) | | | 27.5 | 20 |
| APOR PRESS | UREIMM | HG1-TEMP | | | | | |
| 1 | 10 | 30 | 40 | 100 | 400 | 760 | REF |
| 119.6 | 169.6 | | 207.4 | 236.0 | 288.0 | 317.0 | 21 |
| VAPOR PRES | SURE E | QUATTON C | OEFFICIEN | NTS | | | |
| EQUATION 1 | A | В | | C | D | MAX ERR | AT P |
| QUATION 1 | 7.96 | 80 -2772 | .28 22 | 28.30 | | 82 | 400. |
| QUATION 2 | 36.14 | 45 -872 | 5.4 | -2.25 -24 | . 2327 | .69 | 40. |
| | | | KET | (00 |) REF | | |
| | | | REF | | | | |
| LAMMABLE L | | LOWER | | | JPPER | | |
| | VOL | LOWER PER RE | F | | JPPER PER REF | | |
| | VOL ON TEMPE DELAY | LOWER PER RE ERATURE I SEC) RE 50 | F | VOL P | JPPER PER REF | | EL |
| UTOIGNITIO DEG C 235. | VOL ON TEMPE DELAY | LOWER PER RE ERATURE I SEC) RE 50 | F AME TEMP (| DEG K) | PPER REF | ERCENT FU | |
| UTOIGNITIO DEG C 235. | VOL | LOWER PER RE ERATURE (SEC) RE 50 | F AME TEMP(| DEG K) | JPPER PER REF | ERCENT FU | EL |

NONADECANE

| HEAT OF COMBUSTION OF LIQUID | | KCAL/M | OLE | CAL/GRAM | REF | |
|---------------------------------------|-----------|-----------|-----------|----------|-----------|------|
| F LIQUID | (NET) | 2814. | 11 | 10480. | (8)(60) |) |
| 45 A 7 O 5 VAROR 1 7 A 7 1 | (GROSS) | 3024. | 71 | 11263. | (8)(60) | 101 |
| HEAT OF VAPORIZATI | | | | | | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX | 20 C | REF | 25 C | REF | 40 C | REF |
| ENSITY (GRAM/ML) | .7854 | 8(0) | .7821 | 20 | | |
| LEFRACTIVE INDEX | 1.4408 | (8)(1) | 1.4388 | (8)(1) | 24.0 | 20 |
| SURFACE TENSION / ISCOSITY (CS) | | (8)(1) | | | 26.9 | 20 |
| APOR PRESSURE (MM | HG)-TFMP | | | | | |
| | | | | | 760 | REF |
| 1 10 10 133.5 | | 220.0 | 248.0 | 299.8 | 330.0 | 21 |
| | UATION CO | | | | | |
| A | 3 | - 1 | C | D | MAX ERR | AT P |
| QUATION 1 7.891 | 0 -2682. | 69 20 | 6.57 | | 3.17 | 10. |
| QUATION 2 3.47 | 5 -7464 | . 7 | 2.48 -163 | 3.4155 | .27 | 10. |
| LASH POINT(DEG C) | (CC) | REF | (00 | C) REF | | |
| FLAMMABLE LIMITS VOL | | | ı | JPPER | | |
| AUTOIGNITION TEMPE DEG C DELAYI | | | DEG | C REF | | |
| 237. | 50 | | | | | |
| | | | | | | |
| IAX FLAME VEL(CM/S | EC) FLA | ME TEMP(| DEG K) | VOL P | ERCENT FU | EL |
| AX FLAME VEL(CM/S | EC) FLA | ME TEMP((| | VOL P | | EL |

EICOSANE

| SYNONYMS. Formula= C20 | | /H= 5 | .674 | MW= 282.5! | 58 VD= | 9.7434 | |
|-----------------------------------|------------------|----------|--------|----------------|----------------|--------------------|----------|
| HEAT OF COMB | USTION | | | | | | |
| OF LIQUID | | | | 59.89 | | | |
| HEAT OF VAPOR | | | | 80.81 13.74 | | (8) (6) (3) (8) (1 | |
| | | | | | | | |
| DENEITY /CDA | | | | 25 C | | | REF |
| DENSITY (GRAI Refractive 11 | | | | | | | |
| SURFACE TENS | | | | | , 10/11 | 27.2 | 20 |
| VISCOSITY (C | | • • • • | (0)(1 | , | | 2102 | 20 |
| VAPOR PRESSUI | RE(MM HG |) - TEMP | ERATUR | E(DEG C) | DATA | | |
| P 1 | | | 40 | | 400 | 760 | REF |
| T | | | | | | 343.0 | 2 |
| VAPOR PRESSI | JRE EQUA | TION C | OEFFIC | IENTS | | | |
| | A | В | | С | D | MAX ER | RATP |
| EQUATION 1 EQUATION 2 | | | | | | | |
| FLASH POINT() | DEG C) | (CC) | REF | (| OC) RE | F | |
| FLAMMABLE LI | 4ITS L VOL PE | | | VOL | UPPER PER R | EF | |
| AUTOIGNITION DEG C - 1 240. | | | | DE | G C RE | F | |
| AAX FLAME VEL | .(CM/SEC |) FL | AME TE | MP(DEG K) | VOL | PERCENT | FUEL |

CYCLOPROPANE

```
SYNONYMS. TRIMETHYLENE
FORMULA= C3H6 C/H= 5.958 MW= 42.081 VD= 1.4511
                             KCAL/MOLE CAL/GRAM REF
HEAT OF COMBUSTION (NET)
                    (GROSS)
HEAT OF VAPORIZATION(25 C)
15.56 C REF
DENSITY (GRAM/ML) .563 11
REFRACTIVE INDEX
SURFACE TENSION
VISCOSITY (CS)
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
P 1 10 30 40 100 400 760 REF
T -116.8 -97.5 -82.3 -70.0 -46.9 -33.5 21
                                                                21
VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P

EQUATION 1 6.6364 -719.92 225.27 .44 10.

EQUATION 2 101.138 -5444.1 -13.13 10.5025 .40 100.
                                                          .40 100.
                                     (OC) REF
FLASH POINT(DEG C) (CC) REF
FLAMMABLE LIMITS LOWER
              TS LOWER UPPER VOL PER REF 2.4 1,3,4,(8)(15) 10.4 1,3,4,(8)(15)
                                          UPPER
                2.4
                        12(A),66
                                          10.4 12(A),66
                2.48
                        66(B)
                                          60.0 66(B)
                2.45
                       30
                                         10.45 30
                2.5
                       12(A,B)
                                          60. 12(A.B)
                                          10.3
                                                52
AUTOIGNITION TEMPERATURE
     DEG C DELAY(SEC) REF
                                        DEG C REF
     454.
                         54(B)
                                         498. 54
     498.
                         1,3,4
MAX FLAME VEL (CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL
                                         ABS MIN REF
     47.5 (63)
                           2358 (7)
                                                 4.97 (72)
                            STOICH REF
MIN IGN ENERGY(MILLIJOULE) = .35 56
QUENCHING DISTANCE(CM) = .18 7
                                              .18 56
                                                 .18 7
```

CYCLOBUTANE

| SYNONYMS. FORMULA= C4H8 | C/H= 5 | 5.958 MW | 56.108 | VD= 1. | 9348 | |
|--|--------------------|-----------------------|------------------------|------------------|-------------|------|
| HEAT OF COMBUSTION | N (NET) (GROSS) | | MOLE | CAL/GRAM | REF | |
| HEAT OF VAPORIZAT | ION (25 C) | I. | | | | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 20 6 | REF 11(D) 11(D) | 25 C .6890 1.362 | 0 5 6 | | |
| VAPOR PRESSURE(MM P 1 10 T | 30 | ERATURE (| DEG C) DA 100 | TA 400 | 760 12-5 | REF |
| VAPOR PRESSURE ECA EQUATION 1 EQUATION 2 | OUATION C | OEFFICIE | NTS C | D | MAX ERR | AT P |
| FLASH POINTIDEG C | | | | | | |
| FLAMMABLE LIMITS VOL | LOWER PER RE | F | VOL | UPPER PER REF | | |
| AUTOIGNITION TEMPE DEG C DELAY(| | F | DEG | C REF | | |
| MAX FLAME VELICM/S 56.6 (62) MIN IGN ENERGY(MIL QUENCHING DISTANCE | LIJOULE) | 2311 (6. STOICH | | | | JEL |

METHYLCYCLOPROPANE

| SYNONYMS. FORMULA= C4H8 | C/H= 5.958 Mb | - 56.108 VD- 1 | .9348 |
|--|---------------------------------|---------------------|------------------|
| HEAT OF COMBUSTION HEAT OF VAPORIZATION | (NET) (GROSS) | MOLE CAL/GRA | M REF |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | | | |
| VAPOR PRESSURE(MM H P 1 10 T | 1G)-TEMPERATURE (30 40 | 100 400 | 760 REF .7 11 |
| VAPOR PRESSURE EQUATION 1 EQUATION 2 | JATION COEFFICIE B | | MAX ERR AT P |
| FLASH POINT(DEG C) | (CC) REF | (OC) REF | |
| FLAMMABLE LIMITS VOL P | | UPPER VOL PER RE | F |
| AUTOIGNITION TEMPER DEG C DELAY(S | | DEG C REF | |
| MAX FLAME VEL(CM/SE 49.2 (62) MIN IGN ENERGY(MILL QUENCHING DISTANCE(| 6) 2319 H3101CH =(3JUULE) | | .93 (73) |

CYCLOPENTANE

```
SYNONYMS. PENTAMETHYLENE
FORMULA= C5H10 C/H= 5.958 MW= 70.135 VD= 2.4185

        HEAT OF COMBUSTION
        KCAL/MOLE
        CAL/GRAM
        REF

        OF LIQUID
        (NET)
        733.94
        10465.
        11

        (GROSS)
        786.54
        11215.
        11

        HEAT OF VAPORIZATION(25 C)
        6.82
        97.21
        11

_______
20 C REF 25 C REF 37.78 C REF
DENSITY (GRAM/ML) .74538 11 .74045 11
REFRACTIVE INDEX 1.40645 11 1.40363 11
SURFACE TENSION 22.42 (8)(60) 21.82 11
VISCOSITY (CS) .589 19 .499 11
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
P 1 10 30 40 100 400 760 REF
T -68.0 -40.4 -18.6 -1.3 31.0 49.3 21
_____
VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P

EQUATION 1 6.8594 -1111.37 230.03 -.31 10.

EQUATION 2 71.214 -5743.6 -8.12 16.5742 -.39 10.
                            FLASH POINTIDEG C) (CC) REF (OC) REF -42. 19(AY)
                             -37.0 3,(8)(9)(J)
                             -6.5 6
FLAMMABLE LIMITS LOWER UPPER VOL PER REF 1.4 8(DD)
AUTOICHITION TEMPERATURE
       DEG C DELAY(SEC) REF
                                           DEG C REF
       385.
             6. 49
MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 37.3 (63) 2264 (7) 3.16 (72) STOICH REF ABS MIN REF
MIN IGN ENERGY(MILLIJOULE) = .83 (7)(57)(E)
QUENCHING DISTANCE(CM) = .33 7
```

METHYLCYCLOBUTANE

| SYNONYMS. FORMULA= C5H10 | C/H= | 5.958 | MW= | 70.135 | VD- | 2.4185 | |
|---|-------------------------|-----------|--------|--------|-------|---------------------|--------|
| HEAT OF COMBUSTION | (NET) | | AL/MOI | LE | CAL/G | RAM REF | |
| HEAT OF VAPORIZATI | | | | | | | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 20 C .6930 1.3836 | REF 11 | | | 11 | | |
| VAPOR PRESSUREIMM P 1 10 T | HG) – TEM 30 | 4 | 0 | 100 | 400 | 760 36.3 | |
| VAPOR PRESSURE EQ A EQUATION 1 EQUATION 2 | | | CLENTS | 5 | D | MAX ER | R AT P |
| FLASH POINT(DEG C) | (CC) | REF | | (0 (| C) RE | F | |
| FLAMMABLE LIMITS VOL | LOWER PER R | | | VOL (| | REF | |
| AUTOIGNITION TEMPE DEG C DELAYI | | E F | | DEG | C RE | | |
| MAX FLAME VEL (CM/S 44.6 (72) MIN 1CN ENERGY(MIL) QUENCHING DISTANCE | LIJOULE | STOI | EMP(DE | | | PERCENT 3.18 (72 | |

CIS-1,2-DIMETHYLCYCLOPROPANE

| HEAT OF COMBUSTE | ON (NET) (GROSS) TION(25 C) |) | | | | |
|---|-----------------------------------|-----------------|-------------------------|-----------------|---------|------|
| DENSITY (GRAM/ML REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 20 C 1 .6939 1.3829 | REF 11 11 | 25 C •6889 1•3800 | REF 11 11 | | |
| VAPOR PRESSUREIM P 1 10 T | M F.G)-TEMP 30 | ERATURE (D | EG C) DA | 400 | 760 | REF |
| VAPOR PRESSURE | EQUATION C B | OEFFICIEN | TS C | D | MAX ERR | AT P |
| FLASH POINTIDEG (| c) (CC) | REF | (0 (|) REF | | |
| FLAMMABLE LIMITS VOI | LOWER L PER RE | | ι | IPPER | F | |
| | | | | | | |
| AUTOIGNITION TEMP DEG C DELAY | | F | DEG | C REF | | |

TRANS-1,2-DIMETHYLCYCLOPROPANE

| SYNONYMS. Formula= C5H10 | C/H= 5.958 | MW= 70.13 | 5 VD= 2 | .4185 | |
|--|--------------------------|-------------------------|-----------------|-------------|-----------|
| HEAT OF COMBUSTION | (NET) (GROSS) | CAL/MOLE | CAL/GRA | M REF | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | .6698 11 1.3713 11 | 25 C .6648 1.3683 | 11 | | |
| VAPOR PRESSURE(MM P 1 10 T | HG)-TEMPERAT | URE(DEG C) D 40 100 | | 760 28.2 | REF 11 |
| VAPOR PRESSURE EQ A EQUATION 1 EQUATION 2 | UATION COEFF B | C C | D | MAX ERR | AT P |
| FLASH POINTIDES C) | (CC) RE | | OC) REF | | |
| FLAMMABLE LIMITS | LOWER PER REF | | UPPER PER RE | | |
| AUTOIGNITION TEMPE | | DE (| G C REF | | |
| MAX FLAME VEL(CM/S) 46.2 (62) MIN IGN ENERGY(MIL) QUENCHING DISTANCE | 2312 STO LIJOULE)= | | | PERCENT F | uel |

ETHYLCYCLOPROPANE

| TORPOCK CONTO | C/H= 5 | .958 MW | 70.135 | VD= 2. | 4185 | |
|---|-------------------------|------------------|-------------------------|------------------|---------|-----------|
| HEAT OF COMBUSTION | (GROSS) | KCAL/P | 10L E | CAL/GRAM | REF | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 20 C .6840 1.3786 | REF 11 11 | 25 C .6790 1.3756 | REF 11 11 | | |
| VAPOR PRESSURE(MM P 1 10 T | 30 | 40 | 100 | 400 | 35.9 | 11 |
| VAPOR PRESSURE EQ A EQUATION 1 EQUATION 2 | | DEFFICIEN | ITS C | D | | |
| FLASH POINT(DEG C) | (CC) | REF | (0) | C) REF | | |
| | | | | | | |
| | LOWER PER REF | | | UPPER Per Ref | •• | - |
| VOL | PER REF | : | VOL (| | | |
| AUTOIGNITION TEMPE | PER REF | ME TEMP(2291 (62 | DEG K) | PER REF | 60 (73) | JEL |

CYCLOHEXANE

| SYNONYMS. | | | | | | | 2 9022 | |
|--|--|------------------------------------|-----------------------------------|---|---|------------------------|-------------------------------|-------|
| | | | | | | | | |
| LEAT OF C | OMBUSTIO | N | | KCAL/F | IOLE | CAL/G | RAM REF 2. 11 | |
| of Figure | 1 | (N | ET) | 873. | 76 | 1038 | 2. 11 | |
| | | | | | | | 2. 11 | |
| TEAT OF V | APORIZAT | 10N125 | () | ,, | 90 | 93. | 81 11 | |
| | | 20 C | R | EF | 25 C | REF | 40 C | |
| ENSITY (| | | | | | | | |
| EFRACTIV | | | | | | | | |
| | | | | | | | 21.99 | |
| ISCOSITY | (CS) | 1.258 | 1 | 9 | | | .926 | 19 |
| APOR PRE | | | | ATUREID | EG C) DA | TA | | |
| 1 | 10 | 3 | 0 | 40 | 100 | 400 | 760 | REF |
| -45.3 | -15.9 | | | 6.7 | 25.5 | 60.8 | 80.7 | 21 |
| VAPOR PR | FSSURE F | QUATIO | N COE | FFICIEN | TS | | | |
| | A | | В | | C | D | MAX ERF | AT P |
| QUATION | 1 6.62 | 82 -1 | 086.1 | 6 20 | 9.13 | | 1.65 | 5 10. |
| QUATION | 2 92.6 | 98 - | 7320. | B -1 | 1.19 1 | 9.9212 | 1.69 -1.29 | 40. |
| | | | | | | | | |
| LASH POL | NTIDEG C |) (C | C) (| REF | (0 | C) RI | EF | |
| | | | | | | | | |
| | | | 7.0 0.0 | l | | | | |
| LAMMABLE | 1.3 AT | LOWER PER 50 C | R REF 14(U | 1 3,4) 6,(8)(1 | 9.1 AT 5 5) 8. | 0 C 14 | (U) ,4 ,12(A) | |
| TUTOIGNIT DEG 268. 296. | 1.3 AT 1 1 1 1 ION TEMP | LOWE PER 50 C • 3 • 3 | R REF 14(U 1,3,4 12(A | 1 3,4) 4,(8)(1 | 9.1 AT 5 5) 8. 8. 7. DEG 259 | 0 C 14 4 16 8 (6 | (U) ,4 ,12(A) 3)(15) | |
| TUTOIGNIT DEG 268. 296. 270. | 1.3 AT 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | LOWE PER 50 C • 3 • 3 | R REF 14(U 1,3,4 12(A | 1 3,4),(8)(1) (33)(8) | 9.1 AT 5 8. 8. 7. DEG 259 325 | C RE | F PERCENT F | |
| TUTOIGNIT DEG 268. 296. 270. | 1.3 AT 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | LOWER PER 50 C • 3 • 3 | R REF 14(U 1,3,4 12(A 12) 49 | 1 3.4 3.4 3.4 3.4 3.1 3.1 3.1 3.1 3.1 3.1 3.1 3.1 3.1 3.1 | 9.1 AT 5 8. 8. 7. DEG 259 325 | C RE | F PERCENT F | |

METHYLCYCLOPENTANE

| SYNONYMS. FORMULA. COH | 12 C/H= | 5.958 MW= | 84.163 | VD= 2. | 9022 | |
|------------------------------|------------------------|----------------------------|-----------|--------------|----------|--------|
| | | | | CAL /CDAM | 016 | |
| OF LIQUID | 02110N | KUAL/M | OLE | LAL/GRAD | MER | |
| OF LIGOTO | INET |) 878. | 02 | 10432. | 11 | |
| | IGROSS | 941. | 14 | 11182. | 11 | |
| HEAT OF VAPO | RIZATIONI 25 C | , , | 70 | 07.03 | 4.1 | |
| DENSITY (GRA | | | | | | |
| DENSITY IGRA | M/ML) .74864 | 11 | .74394 | 11 | | |
| REFRACTIVE I | NDEX 1.40970 | 11 | 1.40700 | 11 | | |
| SURFACE TENS | ION 22.19 | (8)(60) | 21.61 | 11 | | |
| SURFACE TENS VISCOSITY (C | 5) .677 | 19 | | | .555 | 19 |
| | | | | | | |
| | RE(MM hG)-TEM 10 30 | | | | 740 | 0 6 6 |
| T -53.7 | -22.7 | 40 6 | 17.0 | 4 00 | 71 4 | 21 |
| • | -23.1 | 0 | 11.9 | 7 6.3 | 11.0 | ۷۱ |
| VADAR DRECCI | IRE COLLATION | | 7 C | | | |
| | A | 8 | C | D | MAX ERR | AT P |
| EQUATION 1 | 6.9847 -124 | 7.31 23 | 2.25 | | .89 | 10. |
| EQUATION 1 EQUATION 2 | 54.950 -55 | 03.0 - | 5.54 | 2.6570 | 37 | 40. |
| FLASH POINT(| -25. | REF 19(AY) 0 (8)(9)(| | C) REF | | |
| FLAMMABLE LII | MITC I NUED | | | JPPER | | |
| TEANNABLE LI | MILLS FOMER | C E | אטו פ | DEP DEE | | |
| • | VOL PER R | 6 F | 9 5 AT 50 | 1 | \ | |
| 4 | 1.2 8 | (DD) | 8.3 | 5 (B)() | (6) | |
| | | | | | | |
| AUTOIGNITION | TEMPERATURE | | | | | |
| | DELAYISEC) R | E F | DEG | C REF | | |
| 323. | | 9 | | (22) | 33)(8) | |
| 469. | 4 | | ,,,, | | | |
| | | | | | | |
| MAX FLAME VEL | | | | | | JEL |
| 36.0 (| 63) | 2228 (7) | | | (72) | |
| MIN 164 5455 | | STOICH | REF | ABS MIN | REF | |
| MIN IGN ENERG | |) = | | | | |
| QUENCHING DIS | STANCE (CM)= | | | | | |

ETHYLCYCLOBUTANE

| | | | Y.C. | AL/MOLE | | . /CPAM | 055 | |
|-------------------------------|--------------------------------|-------------------------------------|------------------------------------|---------|-----------------------|---------------------|-------------|-----------|
| EAT OF COMBU | STION | |) | AL/HULE | | L/GRAD | NEF | |
| EAT OF VAPOR | | | CI | | | | | |
| | ~ | | REF | 25 | C R | EF | | |
| ENSITY IGRAM | /ML) | .7279 | 11 | .723 | 2 1 | 1 | | |
| EFRACTIVE IN SURFACE TENSI | | 1.4020 |) !! | 1.34 | 94 I | 1 | | |
| ISCOSITY (CS |) | | - | | | | | |
| APOR PRESSUR | E (MM | HG)-TE | EMPERATU | | | | | |
| P i | 10 | 30 | 40 | 0 100 | 4(| 00 | 760 70.6 | REF 11 |
| | | | | | | | | |
| WAPOR PRESSU | RE EQ | HOITAU | OEFFIC B | CIENTS | D | | MAX ERR | AT P |
| QUATION 1 | | | | • | J | | | |
| | | | | | | | | |
| EQUATION 2 | | | | | | | | |
| EQUATION 2 | | 100 | ;) REF | | (OC) | | | |
| -LASH POINTID | EG C) | LOWER | | | | REF ER REF | .2(A) | |
| LASH POINTID | ITS VOL 1. | LOWER PER 2 RATURE SEC) | REF 3,4,12(/ | V | UPPI OL PER 7.7 | REF REF 3.4.1 | 2(A) | |
| LASH POINTID | ITS VOL 1. TEMPEELAY(| LOWER PER 2 RATURE SEC) | REF 3,4,12(A REF (22)(30) | V | UPPI OL PER 7.7 | REF REF 3,4,1 | | |

1,1,2-TRIMETHYLCYCLOPROPANE

| | | | Mw= 84.163 | | | |
|--|-----------------------------|-------------|----------------------------|-----------|-------------|---------|
| HEAT OF COMBU | (GR | T) (OSS) | AL/MOLE | CAL/GRA | M REF | |
| DENSITY (GRAM REFRACTIVE IN SURFACE TENSI VISCOSITY (CS | 20 /ML) .694 DEX 1.38 | C REF | | 11 | | |
| VAPOR PRESSUR P 1 T | | | | 400 | 760 52.4 | |
| VAPOR PRESSUEQUATION 1 EQUATION 2 | RE EQUATI | | | D | MAX ERR | AT P |
| FLASH POINT(D | ITS LOW | ER | | UPPER | | |
| AUTOIGNITION DEG C D | Temperatu | RE | VOL DEG | | | |
| MAX FLAME VEL 43.5 (6) | | 2310 | MP(DEG K) (62) H REF | | .62 (73) | UEL |

1SOPROPYLCYCLOPROPANE

| HEAT OF C | | | | | | | | | 022 | | | |
|---|----------------|---------|----------------|---------------|-------------|-----|---------------|-------|-----|-----|----|---|
| HEAT OF V | | | (NET) |) | AL/MOI | Ε | CAL | /GRAM | RE | F | | |
| DENSITY (REFRACTIV SURFACE T VISCOSITY | E IND ENSIO | EX N | | | | | | | | | | |
| VAPOR PRE P 1 T | | 10 | 30 | , | •0 | 100 | 40 | 0 | | | RE | F |
| VAPOR PREGUATION | ESSUR 1 | E EQU | ATION | COEFF1 B | CIENTS C | 5 | D | | | ERR | AT | P |
| FLASH POI | NT (DE | | (CC) | | | | | REF | | | | |
| FLAMMABLE | LIMI | TS | LOWER ER R | | | | UPPE L PER | | | | | |
| AUTOIGNIT DEG (| | | ATURE EC) R | EF | • | DI | EG C | REF | | | | |
| MAX FLAME 42.7 HIN IGN ER | (72) |) | | 1012 | EMP(DE | | AB | 2.6 | 6 (| 72) | EL | |

CYCLOHEPTANE

| SYNONYMS. FORMULA= C7H14 | C/H= 5.9 | 58 Mw= 98.1 | 90 VD= 3 | . 3858 | |
|---|---------------------|--------------------|--------------------|-----------|------|
| HEAT OF COMBUSTIO OF LIQUID | (NET) | | 10403. | 11 | |
| HEAT OF VAPORIZAT | 10N(25 C) | | | | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | .8110 1 1.4449 1 | EF 25 C 1 .8066 | 11 | | |
| VAPOR PRESSURE(MM P 1 10 T | HGI-TEMPER 30 | 40 100 | 400 | 118.8 | |
| VAPOR PRESSURE E A FQUATION 1 EQUATION 2 | QUATION COE | | | | AT P |
| FLASH POINTIDEG C | | REF | (OC) REF | | |
| | LOWER PER REF | VO | UPPER L PER REF | : | |
| AUTOIGNITION TEMP DEG C DELAY | | D | EG C REF | | |
| MAX FLAME VELICH/ | SEC) FLAME | TEMP(DEG K) | VOL P | ERCENT FL | JEL |
| MIN IGN ENERGY(MI | | TOICH REF | ABS MIN | REF | |

METHYLCYCLOHEXANE

| HEAT OF COMI | BUSTION | | | CAL/MOLE | | | | |
|------------------------|-----------|---------|-------------|----------------|-------|---------|-------------------------------|--------|
| OF LIQUID | | INE | T) | 1017.49 | | 10362. | 11 | |
| | | | | 1091.13 | | | | |
| HEAT OF VAPO | DRIZATI | ON (25 | E) | | | 86.07 | | |
| | | | | 2 | 5 C | REF | | REF |
| ENSITY (GR | | | | | | | | |
| REFRACTIVE | | | | | | | | |
| URFACE TENS | | | | 23 | .17 | 11 | 21.76 | |
| ISCOSITY (| .;, 1 | . 454 | 19 | | | | .750 | 19 |
| APOR PRESSI | | | | | | | 7.0 | |
| 1 | | | | | | | | |
| -35.9 | -3.2 | | | 2.0 4 | | | | 21 |
| VAPOR PRES | | | COEFF | ICIENTS | | | | |
| | A | | 8 | C | | D | MAX ERR | AT P |
| QUATION 1 QUATION 2 | 6.985 | 55 -13 | 59.75 | 230.5 | 2 | | .89 | 10. |
| QUATION 2 | 51.73 | 32 -5 | 780.7 | 5.0 | 0 | .1622 | 25 | 40. |
| LASH POINT | | (CC |) RE | F | | | | |
| | | | 0 1, | | | | | |
| | | -1. | 0 19 | (AY) | | | | |
| | | | | | | | | |
| LAMMABLE L | | | | | | IPPER | | |
| | VOL | PER | REF | | VOL P | ER REF | : | |
| • | | | | 7.1 | AT 50 | C 141L |) } | |
| | | 2 | | 1(15) | | | | |
| | | 2 | | | | | | |
| | 1. | 5 | 1 | | | | | |
| | | | | | | | | |
| UTOIGNITION | | | | | | | | |
| DEG C | DELAY (| | - | | | C REF | | |
| 285. | | | 3 | | | (22) | (33)(B) | |
| 265. | 108 | • | 49 | | 393. | 46 | | |
| | | | | TEMB! DEC | | | COCCNT C | |
| AV CLAME VE | | ELI | LAME | ICAPIDED | | | | JEL |
| | | | | 171 | | 2 | 42 1721 | |
| 37.5 | | | | (7) | | ARS MIN | 43 (72) REF | |
| IAX FLAME VE 37.5 (| 63) | | 2186 STO | (7) ICH REF | | ABS MIN | 43 (72) REF (7)(59) | (F) |

1.1-DIMETHYLCYCLOPENTANE

| SYNONYMS. FORMULA= C7H14 | C/H= 5 | .958 Mw= | 98.190 | VD= 3. | 3858 | |
|--|-----------------------|----------------------------|------------------------------------|--------------------|-----------|------------|
| HEAT OF COMBUSTION | (NET) | KCAL/M 1021. | OLE 80 | CAL/GRAN 10406. | REF | |
| HEAT OF VAPORIZAT | 10N125 C) | 8. | 08 | 82.28 | 11 | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION | 1.41356 21.74 | REF 11 11 (8)(60) | 25 C .74991 1.41091 21.23 | REF 11 11 | | |
| VISCOSITY (CS) | | | | | | |
| VAPOR PRESSURE(MP P 1 10 T -43.1 -12.3 | 30 6.4 | 40 | 100 31.2 | 400 | 87.9 | 19 |
| VAPOR PRESSURE 6 A EQUATION 1 6.83 | QUATION C | OEFFICIEN | TS | | | |
| EQUATION 1 6.82 EQUATION 2 75.2 | 157 -1223 166 -658 | .86 22 1.4 - | 2.40 8.58 21 | 1.0200 | .07 | 10. 30. |
| FLASH POINT(DEG (| -12.0 | REF 19(AY) | (00 | C) REF | | |
| | LOWER PER REI | F | VOL F | | | |
| AUTOIGNITION TEMP DEG C DELAY | | | DEG | C REF | | |
| MAX FLAME VEL(CM/ | SEC) FL | AME TEMP(| DEG K) | VOL PE | ERCENT FL | JE L |
| MIN IGN ENERGY(MI QUENCHING DISTANO | | | REF | ABS MIN | REF | |

CIS-1.2-DIMETHYLCYCLOPENTANE

| SYNONYMS. Formula= C7H1 | | C/H= | 5.958 | MW= | 98.1 | 90 VD= | 3.3858 | |
|--------------------------------|------------|--------|--------------|--------|--------|----------------|-----------|-------|
| HEAT OF COMBU | STION | | | | | | | |
| OF LIQUID | | | | | | | 23. 11 | |
| HEAT OF VAPOR | | N(25 | C) | 8.5 | 5 | 87. | 73. 11 | |
| | | 20 C | REF | | 25 C | REF | 30 C | REF |
| DENSITY (GRAM | | | | | | | | |
| REFRACTIVE IN | | | | | 1.419 | 63 11 | | |
| SURFACE TENSI VISCOSITY (CS |) | | _ | | | | 22.93 | 19 |
| VAPOR PRESSUR | E(MM H | IG)-TE | MPERAT | | | | | |
| P 1 | | | | | | | | |
| T -34.9 | | | | | | | | |
| VAPOR PRESSU | RE EQU | MOITAL | COEFF | ICIENT | S | | | |
| | | | В | C | 1120 | D | MAX ER | |
| EQUATION 1 | | | | | | | | |
| EQUATION 2 | | | | | | 25.3242 | | Z 3U• |
| FLASH POINTID | EG C) | |) RE 0 19 | | | (OC) F | REF | |
| FLAMMABLE LIM | VOL P | _ | REF | | | UPPER L PER | | |
| AUTOIGNITION DEG C D | TEMPER | ATURE | | a | Di | EG C F | :EF | |
| | | | | | | | L PERCENT | |

TRANS-1, 2-DIMETHYLCYCL OPENTANE

| SYNONYMS. FORMULA= C7H1 | | i≅ 5.95 | 8 MW= | 98.190 | VD= 3. | 3858 | |
|--|--|-------------------------|----------------|----------------|------------------|----------------|-----------------|
| HEAT OF COMBU | | | | | | | |
| HEAT OF VAPOR | (GR IZATIONIZ | (OSS) | 1095.6 | 4 6 | 11158. 84.11 | 1 1 1 1 | |
| DENSITY (GRAM REFRACTIVE IN SURFACE TENSI VISCOSITY (CS | 20 /ML) .751 DEX 1.41 ON 21.5 | C RE 44 11 200 11 | | 25 C .74686 | | 30 C •74227 | REF 19 19 |
| VAPOR PRESSUR P 1 T -40.1 | 10 | 30 | 40 | 100 | 400 | 760 91.9 | REF 19 |
| VAPOR PRESSU EQUATION 1 EQUATION 2 | A 6.8475 - 75.282 | 8 1244.15 -6674.7 | C 221 -8 | .79 .56 20 | 0.8096 | .15 00 | 10. |
| FLASH POINT(D | | CC) R 10.0 1 | | (00 | C) REF | | |
| ELAMMABLE LIM | VOL PER | | | | JPPER PER REF | | |
| AUTOIGNITION DEG C DE | TEMPERATU ELAY(SEC) | | | DEG | C REF | | |
| | | | | | | | |
| MAX FLAME VEL | (CM/SEC) | FLAME | TEMPIDE | G K) | VOL PE | RCENT FU | EL |
| MIN IGN ENERGY QUENCHING DIST | | ULE) = | DICH RE | F | ABS MIN | REF | |

CIS-1.3-DIMETHYLCYCLOPENTANE

| FORMULA = C7H1 | | | | | | | |
|--------------------------------|-----------|------------|-------|-----------------|-------------|----------------|-----------|
| HEAT OF COMBL OF LIQUID | ISTION | (NET) | 10 | L/MOLE 22.26 | CAL/ 104 | GRAM RE | [F] |
| HEAT OF VAPOR | MOTTART | 25 C) | | 8.20 | 83 | 61. 1 .51 1 | 11 |
| | 20 | C | REF | 25 | C REF | 30 | C REF |
| DENSITY (GRAP REFRACTIVE IN | 1/ML) .74 | 479 | 11 | .740 | 25 11 | . 73 | 1989 19 |
| REFRACTIVE IN | IDEX 1.4 | 0894 | 11 | 1.40 | 633 11 | 1.4 | 0555 19 |
| SURFACE TENSI VISCOSITY (CS | 5) | | | | | | . 20 19 |
| VAPOR PRESSUR | | | | | | | |
| P 1 | 10 | 30 | 40 | 100 | 400 | 760 | REF |
| r -40.3 | -9.2 | 9.7 | | 34. | 7 | 91.7 | 19 |
| VAPOR PRESSU | RE EQUAT | ION CO | EFFIC | IENTS | | | |
| EQUATION 1 EQUATION 2 | A | 8 | _ | С | D | MAX | ERR AT P |
| EQUATION 1 | 6.8443 | -1243. | 16 | 221.93 | 20 000 | _ | -11 10. |
| EQUATION 2 | 17.144 | 0000 | . 6 | -8.54 | 20.899 | ! | .04 30. |
| FLASH POINTID | | -10.0 | | | (00) | KEF | |
| FLAMMABLE LIM | ITS LO | WER | | | UPPER | | |
| | VOL PER | REF 8(D | | V | OL PER | REF | |
| AUTOIGNITION DEG C D | | | | | DEG C | REF | |
| | | | ME TE | MPINEG K | | L PERCEN | T 61161 |

TRANS-1.3-DIMETHYLCYCLOPENTANE

| FLAMMABLE LIMITS VC | LOWER DL PER REI 1.1 8(1 | 5 | UPPER VOL PER | | |
|---|---------------------------------|---------------------|----------------------|-------------------|----------|
| FLASH POINTIDEG | C) (CC) | | | REF | |
| POR PRESSURE EQUATION 1 6.8 EQUATION 2 76. | B 3353 -1236 .651 -669 | .37 221. 8.2 -8. | D 86 77 22.945 | 7 .09 | 30. |
| APOR PRESSURE(N 1 10 -41.0 -10 | 1M HG)-TEMP 30 .0 8.9 | 40 | 100 400 33.8 | | |
| DENSITY (GRAM/MUREFRACTIVE INDE) SURFACE TENSION VISCOSITY (CS) | .) .74880 (1.41074 20.76 | 11 . | 74435 11 | | 19 19 |
| HEAT OF VAPORIZA | (GROSS) ATION(25 C) | 1096.39 8.25 | 9 111 | .66. 11 .00 11 | |
| OF LIQUID | (NET) | 1022.75 | E CAL / | 16. 11 | |

ETHYLCYCLOPENTANE

| EAT OF COMM | 15 7 10 | | | | | | | | M 05 | | |
|----------------------------|-------------------|------------------|----------------|-------------|---------|-------------|--------------------------|----------------------------|--------------------|------|------|
| HEAT OF COMBL OF LIQUID | 12110 | | | | | | | | M KE | | |
| or Ligoto | | | | | | | | | i | | |
| LEAT OF VAPOR | RIZAT | | | | | | | | i | | |
| | | 20.5 | . | 000 | | | | | 40 | | 4£F |
| ENSITY LURAN | 1/ML) | | | | | | | | 70 | C | 751 |
| EFRACTIVE IN | NDEX | 1.419 | 81 | 11 | | 1.4173 | 30 i | ī | | | |
| SURFACE TENS | ION | 23.88 |) | (8)(| 601 | 23.37 | 1 | ī | 21. | 25 | 19 |
| ISCOSITY (C | | | | 19 | | | | | .60 | 8 | 19 |
| APOR PRESSU | | | | | REIDI | EG C) [| ATA | | | | |
| 1 | 10 | 3 | 0 | 4 | 0 | 100 | 4 | 00 | | | REF |
| -32.2 | 1 | | | | | | | | | | 21 |
| VAPOR PRESSU | JRE E | QUATIO | N C | DEFFI | CIENT | 7 S | | | | | |
| EQUATION 1 | A | | 8 | | (| ; | D | | MAX 1 | ERR | AT P |
| EQUATION 1 | 6.904 | 43 -1 | 307 | . 23 | 221 | 1.53 | | | • | . 17 | 10. |
| QUATION 2 | 71.21 | 12 - | 6734 | 4.7 | -7 | 7.89 | 16.9 | 555 | - | .16 | 400. |
| | | | | | | | | | | | |
| FLASH POINT(| DEG C | | | REF 19(/ | | (| OC) | REF | | | |
| | | - 1 L OWE | . • 0 . • C | 19(/ | AY) | | UPP | ER | | | |
| | 11TS VOL | LOWE | 0 R REF | 19(/ | AY) | V OL | UPP PER | ER RE | F | | |
| | 11TS VOL 1. | LOWE | R REF | 19(/ | AY) | VOL | UPP PER | ER RE | F ,(8)(1 | 5) | |
| FLAMMABLE LIM | VOL 1. | LOWE PER 1 | R REF | 19(/ | AY) | VOL 6 | UPP PER | ER RE 3,4 12(| F ,(8)(1! A) | 5) | |
| FLAMMABLE LIM | VOL 1. | LOWE PER 1 | R REF | 19(/ | AY) | VOL 6 | UPP PER | ER RE 3,4 | F ,(8)(1! A) | 5) | |
| | TEMPE DELAY | LOWE PER 1 | R REF 3,4 | 19(/ | (15) | VOL 6 | UPP PER 0.7 0.7 | ER RE 3,4 12(| F,(8)(1!A) | | |

ISOPROPYLCYCLOBUTANE

MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM) =

SYNONYMS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG () DATA 1 10 30 40 100 400 760 REF VAPOR PRESSURE EQUATION COEFFICIENTS MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PER REF , AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF MAX FLAME /EL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 39.1 (62) 2.65 (73) STOICH REF ABS MIN REF

127

SEC-BUTYLCYCL OPROPANE

SYNONYMS. 2-CYCLOPROPYLBUTANE FORMULA= C7H14 C/H= 5.958 MW= 98.190 VD= 3.3858 KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION 25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE (MM HG)-TEMPERATURE (DEG C) DATA P 1 10 30 40 100 400 760 REF VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF FLAMMABLE LIMITS LOWER UPPER TITS LOWER UPPER VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 39.8 (72) 2.51 (72) 39.8 (72) 2.51 (72) STOICH REF ABS MIN REF MIN IGN ENERGY (MILLIJOULE) = QUENCHING DISTANCE(CM) =

CYCLOOCTANE

| EAT OF COMBU | | | | KCAL/M | 01 F | CAL /GI | RAM RE | . F | |
|--|-------------------|----------------|--------------|--------|-----------------|------------|--------|-----|------|
| | | | | | | 1040 | | | |
| HEAT OF VAPOR | IZATI(| (GROS 0N(25 | S) | 1252. | | 11150 | | | |
| | | | RE | F | 25 C | | | | |
| DENSITY (GRAM REFRACTIVE IN SURFACE TENSI /ISCOSITY (CS | IDEX ION I) | 1.4587 | 11 | | .8320 1.4563 | 11 | | | |
| APOR PRESSUR | E (MM) | HG)-TE | MPERA | | | | 760 | | REE |
| T . | • | 30 | | 40 | 100 | 400 | 151.1 | | 11 |
| VAPOR PRESSU | RE EQI | | COEF | FICIEN | | | MAX | ERR | AT P |
| COLLATION 3 | | | | | | | | | |
| | | | | | (| OC) RE | F | | |
| FLASH POINTID | PEG C) | (CC | REF | EF | | UPPER | EF | | |
| FLASH POINTED FLAMMABLE LIM AUTOIGNITION DEG C D | ITS VOL 1 | LOWER PER 1 | REF B(DD) | EF | VOL | UPPER | REF | | |

1.1-DIMETHYLCYCLOHEXANE

| SYNONYMS. Formula= C81 | 116 | C/H= 5 | .296 MW | = 114.233 | VD= 3. | .9391 | |
|--|----------|--------------------------|-----------------------|--------------------|------------------------------|-----------------|------|
| HEAT OF COME OF LIQUID HEAT OF VAPO | BUSTION | (NET) | KCAL/ 1152 1247 | MOLE •49 •17 | CAL/GRAM 10089. 10918. | REF 11 11 | |
| HEAT OF VAPO | RIZATI | ON(25 C) | 9 | .04 | 79.16 | 11 | |
| | | 20 C | DEE | 25 C | DEE | | |
| DENSITY (GR/ REFRACTIVE SURFACE TENS | M/ML) | .78094 | 11 | .77677 | 11 | | |
| REFRACTIVE | NDEX | 1.42900 | 11 | 1.42661 | 11 | | |
| SURFACE TENS VISCOSITY (| SION | 24.01 | 19 | 23.61 | 11 | | |
| VAPOR PRESSU | JRE (MM | HG)-TEMP | | | | | |
| P 1 | 10 | 30 | 40 | 100 | 400 | 760 | REF |
| T -24.4 | 10.3 | | 37.3 | 57.9 | 97.2 | 119.5 | 21 |
| VAPOR PRES | SURE EC | UATION C | OEFFICIE | NTS | | | |
| EQUATION 1 EQUATION 2 | Α | В | 01 0 | C | D | MAX ERR | AT P |
| EQUATION 1 | 7.14/ | 3 -1519 | .96 2 | 37.03 | 4144 | -1.45 | 100. |
| EUUATIUN Z | | | | | | 1.05 | |
| FLASH POINT | DEG C) | (CC) 13.0 | REF 19(AY) | (00 |) REF | | |
| FLAMMABLE LI | VOL | LOWER PER RE 95 8(| F | VOL P | | | |
| AUTOIGN!TION DEG C | | RATURE SEC) RE | F | DEG | C REF | | |
| MAX FLAME VE | L (CM/S | EC) FL | | (DEG K) | | | JEL |
| MIN IGN ENER QUENCHING DI | | | | | | | |

CIS-1,2-DIMETHYLCYCLOHEXANE

| SYNONYMS. Formula= c8i | 113 | C/H= 5 | .958 MW | = 112.21 | 7 VD= 3 | .8695 | |
|-------------------------------|--------------------|------------------|-----------|----------|-------------------|---------|-----|
| HEAT OF COM | NCITZUE | META | KCAL | MOLE | CAL/GRA 10374. | M REF | |
| OF LIQUID | | (NEI) | 1249 | 0.10 | 11124. | 11 | |
| HEAT OF VAPO | | | | | | | |
| | | | | | | | |
| DENCITA 400 | | | | 25 C | | | |
| DENSITY (GRA | AM/ML) | 79627 | 11 | . 79222 | 11 | | |
| REFRACTIVE SURFACE TENS | INDEX I | 1 • 4 3 3 Y O | 11 | 25 10 | 0 11 | | |
| VISCOSITY (| | . 7 . 70 | 17 | 27.17 | 11 | | |
| /APOR PRESSU | RE(MM H | GI-TEMP | ERATURE (| DEG C) D | ATA | | |
| P 1 | | | | | | 760 | REF |
| T -15.9 | | | | | | | |
| VAPOR PRESS | URE EQL | DATION C | DEFFICIE | NTS | | MAX ERR | |
| EQUATION 1 | 6.8438 | -1370 | .84 2 | 16.20 | | .11 | 10. |
| QUATION 2 | 75.394 | -733 | 8.8 | -8.44 | 23.7802 | | |
| LASH POINT | DEG C) | (CC) | REF | | OC) REF | | |
| | | | 10(1) | | | | |
| | | 22.0 | 19(AY) | | | | |
| LAMMABLE LI | | LOWER PER REI | | | UPPER | | |
| | | 95 8(I | | VOL | PER RE | 7 | |
| AUTOIGNITION DEG C | | | | DE | G C REF | | |
| MAX FLAME VE | L (CM/SE | C) FL/ | | | | | JEL |
| IN IGN ENER | GY(MILL STANCE(| | | REF | ABS MII | N REF | |

TRANS-1, 2-DIMETHYLCYCLOHEXANE

| SYNONYMS. FORMULA= C8H16 | C/H= 5 | .958 MW= | 112.217 | VD= 3 | .8695 | |
|---|-----------------------------|-----------------|----------------|------------------|------------|------|
| | (NET) | 1162. | 60 | 10360. | 11 | |
| HEAT OF VAPORIZAT | | 9. | 17 | 81.69 | 11 | |
| | 20 C | REF | 25 C | REF | | |
| REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 1.42695 | 11 | 1.42470 | 11 | | |
| VAPOR PRESSURE(MM | | | | | 740 | 055 |
| P 1 10 T -21.1 13.0 | 30 | 39.7 | 61.0 | 100.9 | 123.4 | 21 |
| VAPOR PRESSURE E | QUATION C | OEFFICIEN | TS C | D | MAX ERR | AT P |
| EQUATION 1 6.85 EQUATION 2 69.2 | 99 -1369 28 -689 | •08 22 7•0 - | 0.67 7.57 1 | 9.4718 | .20 .04 | |
| FLASH POINT(DEG C | 17.0 | 19(AY) 10(J) | | C) REF | | |
| | LOWER PER REI •95 8() | F | | UPPER PER REF | : | |
| AUTOIGNITION TEMP | | F | DEG | C REF | | |
| MAX FLAME VEL(CM/ | SEC) FL | AME TEMP(| DEG K) | VOL P | PERCENT FL | JEL |
| MIN IGN ENERGY(M)I OUENCHING DISTANCI | | STOICH = | REF | ABS MIN | I REF | |

CIS-1,3-DIMETHYLCYCLOHEXANE

| SYNONYMS. FORMULA= C8H1 | 6 C/H= 5. | .958 MW= 1 | 12.217 VD= | 3.8695 | |
|---|--|----------------------------------|--|---------------------------|-----------|
| HEAT OF COMBUS | STION (NET) (GROSS) | KCAL/MOL 1161.49 1245.65 | E CAL/G 1035 1110 | RAM REF 0. 11 0. 11 | |
| HEAT OF VAPOR | IZALIUNIZO CI | 9.14 | 81. | 41 11 | |
| DENSITY (GRAMAREFRACTIVE INI SURFACE TENSION OF SURFACE TENSION OF S | 20 C /ML) .76603 DEX 1.42294 DN 23.12 | REF 11 . 11 1 (8)(60) 2 | 25 C REF 76196 11 .42063 11 2.64 11 | | |
| VAPOR PRESSURI P 1 T -19.4 | E(MM HG)-TEMPE 10 30 14.9 | 40 41.4 | 100 400 62.5 102.1 | 760 124•4 | REF 21 |
| VAPOR PRESSUE EQUATION 1 6 EQUATION 2 6 | RE EQUATION CO A B 5.9570 -1414. 50.580 -6599 | DEFFICIENTS C 30 222. | | | |
| FLASH POINT(DE | EG C) (CC) 15.0 | REF 19(AY) | (OC) R | E F | |
| FLAMMABLE LIM | ITS LOWER VOL PER REF 0.95 B(D | : | UPPER | | |
| AUTOIGNITION T DEG C DE | | : | DEG C R | EF | |
| MAX FLAME VEL | | | | | UEL |
| MIN IGN ENERGY QUENCHING DIST | (MILLIJOULE) = | | ABS 1 | MIN REF | |

TRANS-1,3-DIMETHYLCYCLOHEXANE

| HEAT OF COMB | USTION | 1 | | CAL /MO | 1 F | CAL/G | RAM REF | |
|---|-------------------|--------------------|--------------|---------|------------------|--------------|-----------|------|
| HEAT OF COMB | | (NE | T) | 1163.2 | 2 | 1036 | 6. 11 | |
| | | IGROS | SI | 1247.3 | 8 | 11110 | 6. 11 | |
| HEAT OF VAPO | | | | | | | 48 11 | |
| DENSITY (GRA | | | | | | | | |
| DENSITY (GRA | M/ML) | .78472 | 11 5 11 | | · 78055 | 11 | | |
| SURFACE TENS | TON | 24.67 | 181 | (60) | 1.4604; 24.16 |) | | |
| VISCOSITY (C | | | | | | | | |
| VAPOR PRESSU | RE(MM | HG)-TE | | | | | | |
| | | | | | | | 760 | REF |
| P 1 T -22.7 | 11.2 | | 37 | 7.5 | 58.5 | 97.8 | 120.1 | 21 |
| VAPOR PRESS EQUATION 1 EQUATION 2 | | | | | | | | |
| | A | | В | C | 1 - | D | MAX ERR | AT P |
| EQUATION 1 | 6.909 | 0 -13 | 78.24 | 222 | -16 | 0 2202 | -68 | 10. |
| EQUALIUN 2 | 02.42 | -6 | 583.1 | -6 | • 24 | 8.2202 | 15 | 40. |
| | DEG CI | 100 |) REI | : | ((| OC) RE | F | |
| FLAMMABLE LI | | | | | | UPPER PER P | : | |
| FLAMMABLE LI AUTOIGNITION DEG C | MITS VOL O. | LOWER PER 95 | REF B(DD) | | VOL | UPPER PER | REF | |

CIS-1,4-DIMETHYLCYCLOHEXANE

| SYNONYMS. HEXAH FORMULA= C8H16 | C/H= 5 | .958 MW= | 112.21 | 7 VD= 3. | 8695 | |
|---|---|------------------------------|-----------------------------------|------------------------------|------------------------|------|
| HEAT OF COMBUST OF LIQUID | | KCAL/M 1163. 1247. | OLE 24 40 | CAL/GRAM 10366. 11116. | REF 11 11 | |
| HEAT OF VAPORIZ | ATION(25 C) | 9. | 33 | 83.12 | 11 | |
| DENSITY (GRAM/M REFRACTIVE INDE SURFACE TENSION VISCOSITY (CS) | 20 C L) •78285 X 1•42966 24•45 | REF 11 11 (8)(60) | 25 C .77870 1.4273 23.96 | REF 11 1 11 | | |
| VAPOR PRESSURE | | | | | 740 | 0.55 |
| P 1 1 14 | •5 | 41.1 | 62.3 | 101.9 | 124.3 | 21 |
| VAPOR PRESSURE EQUATION 1 6.0 EQUATION 2 56 FLASH POINT(DEG | 8 9888 -1436 .029 -636 C) (CC) 11.0 | 0EFFICIEN •42 22 9•7 - | TS C 5.50 5.58 | D 2.9863 | MAX ERR •86 -•23 | AT P |
| FLAMMABLE LIMITS | 5 LOWER DL PER REF 0.95 8(6 | = | | UPPER PER REF | | |
| AUTOIGNITION TENDES C DELA | MPERATURE Ny(SEC) Ref | : | DE6 | C REF | | |
| MAX FLAME VEL(CAMIN IGN ENERGY(ADUENCHING DISTAN | IILLIJOULE): | STOICH | | VOL P | | ;EL |

TRANS-1, 4-DIMETHYLCYCLOHEXANE

| SYNONYMS. HEXAHYDROXYLENE FORMULA= C8H16 |
|---|
| HEAT OF COMBUSTION KCAL/MOLE CAL/GRAM REF OF LIQUID (NET) 1161.62 10352. 11 (GROSS) 1245.78 11102. 11 HEAT OF VAPORIZATION(25 C) 9.05 80.67 11 |
| HEAT OF VAPORIZATION(25 C) 9.05 80.67 11 |
| 20 C REF 25 C REF DENSITY (GRAM/ML) .76255 11 .75835 11 REFRACTIVE INDEX 1.42090 11 1.41853 11 SURFACE TENSION 23.02 (8)(60) 22.52 11 VISCOSITY (CS) |
| VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF |
| T -24.3 10.1 36.5 57.6 97.0 119.3 21 |
| VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 6.9981 -1434.26 229.21 1.11 10. EQUATION 2 50.175 -5984.6 -4.74 -1.806439 40. |
| FLASH POINT(DEG C) (CC) REF (OC) REF 11.0 (1,3,4)(HH) 12.0 19(AY) |
| FLAMMABLE LIMITS LOWER UPPER VOL PER REF 0.95 8(DD) |
| AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF |
| MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM) = |

ETHYLCYCLOHEXANE

| | | | | = 112.21 | | | |
|--------------|---------------|----------|---------|-------------|---------|----------|-------|
| EAT OF COMB | USTION | | KCAL | MOLE | CAL/G | RAM REF | |
| F LIQUID | | (NET) | 1164 | .07 3.23 | 1037 | 3. 11 | |
| EAT OF VAPO | RIZATION | (25 C) | Ç | 0.67 | 86. | 20 11 | |
| FNSITY (GRA | 2 | 0 C | REF | 25 C | REF | 40 C | |
| REFRACTIVE I | NDEX 1. | 43304 | 11 | 1.4307 | 3 11 | | |
| SURFACE TENS | | | | | | | |
| ISCOSITY (C | | | | | | .843 | 19 |
| APOR PRESSU | RE(MM HG |)-TEMPE | RATURE | DEG C) D | | | |
| 3 | | | | | | | |
| -14.5 | | | 47.6 | 69.0 | 109.1 | 131.8 | 21 |
| VAPOR PRESS | | TION CO | EFFICIE | NTS | | | |
| | A | В | | C | D | MAX ERF | |
| QUATION 1 | 7.0289 | -1478. | 46 2 | 24.80 | | • 97 | 7 10. |
| QUATION 2 | 53.386 | -6409 | • 0 | -5.15 - | -2.2124 | .23 | 400. |
| FLASH POINT(| DEG (1 | 35.0 | | | JC) KI | _ r | |
| LAMMABLE LI | MITS L | DWER | | | UPPER | | |
| | VOL PE | R REF | | VOL | PER I | REF | |
| | •9 •95 | 3,4 8 | •12(A) | 6. | .6 3 | ,4,12(A) | |
| | | TURE | | | | | |
| UTOIGNITION | | | | | | | |
| DEG C | DELAYISE | | | | C RE | | |
| DEG C | 114. | 49 | | 262 | 2. 3 | .4 | |

TRANS-1, 2-CIS-4-TRIMETHYLCYCLOPENTANE

| SYNONYMS. FORMULA= C8H16 | | | | VD= 3 | .8695 | |
|---|-----------------------------------|---------------|---------|-------|---------|---------|
| HEAT OF COMBUST | TION (NET) (GROSS) (ATION(25 C) | KCAL/M | DLE | | 1 REF | |
| DENSITY (GRAM/M REFRACTIVE INDE SURFACE TENSION VISCOSITY (CS) | 1L) .74727 EX 1.41060 | REF | 25 C | REF | ÷ | |
| VAPOR PRESSURE(P 1 1 | | 40 | 100 | 400 | 109.3 | 11 |
| VAPOR PRESSURE EQUATION 1 EQUATION 2 | E EQUATION CO | DEFFICIEN' | rs C | υ | MAX ERR | |
| FLASH POINT (DEG | (CC) | REF 19(AY) | | | | |
| FLAMMABLE LIMIT | S LOWER OL PER REF 0.95 8([| = | U | PPER | : | |
| AUTOIGNITION TE DEG C DEL | MPERATURE AY(SEC) REF | : | DEG | C REF | | |
| MAX FLAME VEL(C | MILLIJOULE)= | STOICH F | | | | /EL |

1-METHYL-1-ETHYLCYCLOPEN FANE

| SYNONYMS. FORMULA= C8H1 | | | | | | |
|--|---|------------------------------------|-----------------------|----------------------|------------------------------------|---------------------|
| HEAT OF COMBU | ISTION (I | KCA NET) 11 | AL/MOLE 168.80 | CAL/GRA 10416. | M REF | |
| HEAT OF VAPOR | IZATION(2 | 5 C) | | | | |
| DENSITY (GRAM REFRACTIVE IN SURFACE TENSI VISCOSITY (CS | 20 (1/ML) .780(1DEX 1.42 0N 24.7 | C REF 93 11 718 11 | 2 C •7•67 1•424 | REF 0 11 76 11 | 30 C •77246 1•42239 23•68 | REF 19 |
| VAPOR PRESSUR | | | | | 7/0 | |
| P 1 T -21.6 | 10 12.6 3 | 30 40 3•1 | 60.1 | 4 00 | 760 121.5 | 19 |
| VAPOR PRESSUEQUATION 1 EQUATION 2 FLASH POINT(D | A 7.0109 -1 55.722 - EG C) (0 | B 1437.54 -6319.2 CC) REF | C 226.62 -5.54 | | | AT P 100. 30. |
| AUTOIGNITION DEG C D | TEMPERATUR | | DI | EG C REF | | |
| MAX FLAME VEL | (CM/SEC) | | | VOL ABS MI | | IEL |
| MIN IGN ENERG OUENCHING DIS | | | | | | |

CIS-1-METHYL-2-ETHYLCYCLOPENTANE

| SYNONYMS. FORMULA= C8H1 | | C/H= | 5.958 | MW= | 112.217 | VD= | 3.8695 | |
|--------------------------------|---------|--------|-----------|----------|---------|----------------|----------------|-----|
| HEAT OF COMPL | CTION | /MET | KC | AL/MO | LE | CAL/GF | AM REF | |
| OF LIQUID | | INE |) 1 | 262 2 | 4 | 11150 |). 11). 11 | |
| HEAT OF VAPOR | OITATI | | | 252.2 | • | 1115 | • 11 | |
| | | 20 C | REF | | 25 C | REF | 30 C | REF |
| DENSITY (GRAM REFRACTIVE IN | I/ML) . | 78522 | 11 | | .78113 | 11 | .77704 | 19 |
| SURFACE TENSI | ON 2 | 5.29 | 19 | | 1.42073 | , 11 | 24.25 | 19 |
| VISCOSITY (CS | 5) | | • • | | | | 2.023 | • • |
| VAPOR PRESSUR | E (MM H | G)-TEM | | | | | | |
| P 1 | 10 | 30 | 4 | 0 | 100 | 400 | 760 128.0 | |
| T -16.6 | | | | | 00.1 | | 128.0 | |
| VAPOR PRESSU | RE EQU | ATION | COEFF1 | CIENT | S | | MAN 855 | |
| EQUATION 1 | 7 040S | -147 | 8 4 14 | 225 | 71 | D | MAX ERR | 10. |
| EQUATION 2 | 55.717 | -64 | 62.2 | -5 | .50 | 2.7523 | 05 | 30. |
| FLASH POINTID | | | | | | | | |
| FL4MMABLE LIM | VOL P | LOWER | EF | | | UPPER PER R | : :EF | |
| AUTOIGNITION DEG C D | | | EF | | DEG | C RE | F | |
| | | | | | | | | |
| MAX FLAME VEL | | | STOI | EMP (DE | | | PERCENT FU | JEL |

TRANS-1-METHYL-2-ETHYLCYCLOPENTANE

| SYNONYMS. FORMULA = C8H | 16 | C/H= | 5.958 | MW= 112.2 | | 3.8695 | |
|--|----------------------------|-------------------------------|-----------------------|-------------|------------------------|---------------------------|---------------------|
| HEAT OF COMB OF LIQUID HEAT OF VAPO | RIZATIO | (GROS:)N(25) | S) 17 C) | 252.86 | CAL/GF 1041 1116 | RAM REF 5. 11 5. 11 | |
| DENSITY (GRAI REFRACTIVE II SURFACE TENS VISCOSITY (C | M/ML) . NDEX 1 ION 2 | 20 C 7690 •4219 3•27 | REF 11 11 19 | | REF 11 5 11 | 22.28 | REF 19 19 |
| VAPOR PRESSUI P 1 T -21.2 | 10 12.8 | 30 33.3 | 40 | 100 60.1 | 400 | 760 121.2 | REF 19 |
| VAPOR PRESSI EQUATION 1 EQUATION 2 | | | | | | | AT P 100. 30. |
| FLAMMABLE LI | ITS VOL P | LOWER | EF | | UPPER | EF | |
| AUTOIGNITION DEG C | | | | D | EG C RE | F | |
| MAX FLAME VEL | . (CM/SE | C) F | | | | | U EL |
| MIN IGN ENERG QUENCHING DIS | | | | H REF | ABS M | IN REF | |

CIS-1-METHYL-3-ETHYLCYCLOPENTANE

| FORMULA= C8H | | | | | | | |
|---|-------------------|--------------------------------------|--------------|--------------|-----------------|------------|---------|
| HEAT OF COME OF LIQUID | UST 10 | ٧ | K | CAL/MOLE | CAL/GR | AM REF | |
| OF LIQUID | | (NE | T) | 1167.90 | 10408 | • 11 | |
| WEAT OF WAR | | (GROS | (2) | 1252.06 | 11158 | • 11 | |
| HEAT OF VAPO | | | | | | | |
| | | 20 C | REF | 25 C | REF | 30 C | REF |
| DENSITY (GRA REFRACTIVE I SURFACE TENS | M/ML) | .7724 | 19 | .7681 | 19 | .7638 | 19 |
| REFRACTIVE I | NDEX | 1.4203 | 19 | 1.4179 | 19 | 1.4151 | 19 |
| SURFACE TENS VISCOSITY (C | SION | 23.68 | 19 | | | 22.64 | 19 |
| VAPOR PRESSU | | | | URE(DEG C) D | | | |
| P 1 | 10 | 30 | | 40 100 | 400 | 760 | REF |
| P 1 T -21.0 | 13.1 | 33. | 5 | 60.3 | | 121.4 | 19 |
| VAPOR PRESS | URF FO | DUATION | COFFE | ICIENTS | | | |
| EQUATION 1 EQUATION 2 | A | | В | C | D | MAX ERR | AT P |
| EQUATION 1 | 7.019 | 6 -14 | 34.85 | 225.38 | | 68 | 100. |
| EQUATION 2 | 55.31 | 19 -6 | 340.0 | -5.46 | .4491 | 05 | 30. |
| FLASH POINT | | | | F (| OC) RE | - | - |
| | DEG C | (CC |) RE | F (| | | |
| | DEG CI | (CC | REF | F (| OC) REI | | |
| FLASH POINT (FLAMMABLE LI AUTOIGNITION DEG C | MITS VOL O. | LOWER PER .95 | REF 8(DD) | F (| UPPER PER RI | F | |
| FLAMMABLE LI | MITS VOL O. | LOWER PER 95 | REF 8(DD) | VOL DE | UPPER PER RI | PERCENT FL | JEL |
| FLAMMABLE LI AUTOIGNITION DEG C | MITS VOL O. | LOWER PER 95 RATURE SEC) | REF 8(DD) | VOL DE | UPPER PER RI | PERCENT FL | JEL |

TRANS-1-METHYL-3-ETHYLCYCLOPENTANE

| HEAT OF COMB | USTION | | KCA | L/MOLE | CAL/GRA | M REF | |
|--|-------------------|-------------------|------------|----------------|---------|---------|------|
| F LIQUID | | INET |) 11 | 68.70 | 10415. | 11 | |
| | | IGROSS |) 12 | 68.70 52.86 | 11165. | 11 | |
| HEAT OF VAPO | RIZATI | ON125 C |) | | | | |
| | | 20 C | DEE | 30 C | REE | | |
| DENSITY (GRA | M/ML) | .7619 | 19 | . 7535 | 19 | | |
| DENSITY (GRA REFRACTIVE I SURFACE TENS | NDEX | 1.4186 | 19 | 1.4137 | 19 | | |
| SURFACE TENS VISCOSITY (C | S) | 22.42 | 19 | 21.44 | 19 | | |
| VAPOR PRESSU | | | | | | | |
| P 1 | 10 | 30 | 40 | 100 | 400 | 760 | REF |
| -22.0 | 12.4 | 32.8 | | 59.7 | | 120.8 | 19 |
| VAPOR PRESS | URE EO | LATION | COFFEICE | FNTS | | | |
| EQUATION 1 | A | | В | C | D | MAX ERR | AT P |
| QUATION 1 | 7.077 | 7 -147 | 0.86 | 229.78 | | .99 | 10. |
| QUATION 2 | 47.14 | 3 -59 | 44.3 | -4.25 -6 | .7429 | 30 | 30. |
| | | | | (00 |) REF | | |
| FLASH POINT(| DEG C) | (CC) | 1.EF | | IPPER | | |
| FLASH POINT(FLAMMABLE LI | MITS VOL O. | LOWER PER RI 95 8 | EF (DD) | (0 C | IPPER | | |

N-PROPYLCYCLOPENTANE

| SYNONYMS. FORMULA= C8H16 C/H= 5.95 | 8 Mw= 112.217 VD= 3.8695 |
|--|---|
| | 1169.58 10423. 11 |
| HEAT OF VAPORIZATION(25 C) | |
| | F 25 C REF 40 C REF •77229 11 1.42389 11 |
| SURFACE TENSION 24.17 19 VISCOSITY (CS) .878 19 | 22.20 19 |
| VAPOR PRESSURE (MM HG)-TEMPERA P 1 10 30 T -13.3 21.2 41.9 | 40 100 400 760 REF |
| EQUATION 1 7.0270 -1457.95 | C D MAX ERR AT P .50 10. |
| FLASH POINT(DEG C) (CC) R | |
| FLAMMABLE LIMITS LOWER VOL PER REF .95 8(DD) | UPPER VOL PER REF |
| AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF 285. 46 | DEG C REF |
| | TEMP(DEG K) VOL PERCENT FUEL DICH REF ABS MIN REF |
| MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM) = | |

ISOPROPYLCYCLOPENTANE

| HEAT OF COMBI | USTION | | | | | | |
|--------------------------------|------------------|--------|---------------|-----------|------------------|----------------|---------|
| OF LIQUID | | | KCA | L/MOLE | CAL/G | RAM REF | |
| 0. 2.40.0 | | (NET) | 11 | 69.80 | 1042 | 4. 11 4. 11 | |
| HEAT OF VAPOR | | | | 23.90 | 1117 | · | |
| | | | | | | 30 C | |
| DENSITY (GRAP REFRACTIVE II | 4/ML) .7 | 7653 | 11 | .7725 | 9 11 | .76864 | 19 |
| SURFACE TENS VISCOSITY (C | ION 24. S) | .19 | 19 | 1.923 | 11 050 | 23.22 | |
| VAPOR PRESSU | RECHM HG | -TEMP | | | | | |
| P 1 | 10 | 30 | 40 | 100 | 400 | | |
| T -18.4 | | | | | | 126.4 | 19 |
| VAPOR PRESSU | JRE EQUA | TION C | OEFFIC | IENTS | | | |
| COLLETTON 1 | A 7 0290 | | | | | MAX ERR | |
| EQUATION 1 EQUATION 2 | 7.UZ89 53.938 | -1404 | • 78 1 • 2 | -5-2h | 1.4158 | | 10. |
| | | | | | | | |
| FLAMMABLE LIM | VOL PER | | F | vo | UPPER L PER F | . | |
| AUTOIGNITION DEG C C | | | F | D | EG C RE | :F | |
| | | | | MD/DEC K) | | PERCENT FU | E |

CYCLONONANE

| SYNONYMS. FORMULA= C9H1 | 8 C/H | i= 5. | 958 M | W= 126.244 | VD= 4. | 3532 | |
|---|----------------------------|-------------------|-----------------|------------|------------------|----------|------|
| HEAT OF COMBU | STION | NET | KCAL | /MOLE | CAL/GRAM | 1 REF | |
| 01 27010 | , ce | 10551 | 140 | 8.98 | 11161. | 11 | |
| HEAT OF VAPOR | IZATIONE | 25 C) | | | | | |
| | 20 | С | REF | 25 C | REF | | |
| DENSITY (GRAM | /ML) .850 | 2 | 11 | .8463 | 11 | | |
| DENSITY (GRAM REFRACTIVE IN | DEX 1.46 | 666 | 11 | 1.4644 | 11 | | |
| SURFACE TENSI | | | | | | | |
| VISCOSITY (CS | | | | | | | |
| VAPOR PRESSUR | E(MM HG)- | | RATURE | (DEG C) DA | TA | | |
| P 1 | 10 | 30 | 40 | 100 | 400 | | |
| T | | | | | | | 11 |
| VAPOR PRESSU | | | | | | | |
| | A | В | | C | D | MAX ERR | AT P |
| EQUATION 1 | | | | | | | |
| EQUATION 2 | | | | | | | |
| | | | | (0 | | | |
| | | | | | | | |
| FLASH POINT(D | EG C) (| CC) | REF | | C) REF | | |
| | EG C) (| CC) | REF | | C) REF | | |
| FLASH POINT(D | EG C) (| CC) | REF | | C) REF | | |
| FLASH POINT(D | EG C) (| CC) | REF | | C) REF | | |
| FLASH POINT(D | EG C) (| CC) | REF | | C) REF | | |
| FLASH POINT(D | EG C) (| CC) | REF | | C) REF | | |
| FLASH POINT(D | ITS LOW VOL PER O.85 | CC) IER REF 8(D | REF | VOL | C) REF | | |
| FLASH POINT(D | ITS LOW VOL PER 0.85 | CC) IER REF 8(D | REF | VOL | C) REF | | |
| FLASH POINT(D | ITS LOW VOL PER O.85 | CC) IER REF 8(D | REF | VOL | C) REF | | |
| FLASH POINT(D | ITS LOW VOL PER O.85 | CC) IER REF 8(D | REF | VOL | C) REF | | |
| FLASH POINT(D | ITS LOW VOL PER O.85 | CC) IER REF 8(D | REF | VOL DEG | C) REF | | |
| FLASH POINT(D | ITS LOW VOL PER O.85 | CC) IER REF 8(D | REF | VOL | UPPER PER REF | | |
| FLASH POINT(D | ITS LOW VOL PER O.85 | CC) IER REF 8(D) | REF D) ME TEM | VOL DEG | UPPER PER REF | ERCENT F | |
| FLASH POINTID FLAMMABLE LIM AUTOIGNITION DEG C D | ITS LOW VOL PER O.85 | CC) IER REF 8(D) | REF D) ME TEM | VOL | UPPER PER REF | ERCENT F | |

N-PROPYLCYCL OHEXANE

| FORMULA = C9H | 18 | C/H | ≠ 5 | | | | | 70000 | | |
|-----------------------------|--------------------|-------------------|-------------|--------|---------|------------|--------------|--------------|--------|------|
| HEAT OF COMB | USTION | ı | | KC | AL/MOLE | | CAL/G | RAM R | E F | |
| OF LIQUID | | (1 | NET) | 11 | 309.66 | | 1037 | 4. | 11 | |
| | | (GR | 0881 | 14 | 404.34 | | 1112 | 4. | 11 | |
| HEAT OF VAPO | R I Z A T I | ON (2 ! | 5 C) | | 10.78 | | 85. | | | |
| | | 20 (| С | REF | 25 | С | REF | 40 | C | REF |
| DENSITY (GRA | M/ML) | . 7930 | 60 | 11 | . 78 | 911 | 11 | | | |
| REFRACTIVE I | | | | | 1.4 | 34 / 8 | 3 11 | 22 | | |
| SURFACE TENS | | | | | | | | | | 19 |
| VISCOSITY (C | 21 | 1.20 | | | | | | | 10 | 19 |
| APOR PRESSU | | | | | | | | 740 | | 055 |
| P 1 | 40 1 | ۲. | 3U 2 1 | 41 | 91 | ٠ م | 400 | 156 | 7 | 10 |
| 4.0 | | | | | 71 | | | | | |
| VAPOR PRESS | URE EQ | LITAU | ON C | 0EEE10 | TENTS | | | | | |
| | A | | В | | С | | D | MAX | ERR | AT P |
| EQUATION 1 | 6.900 | 15 - | 1470 | .29 | 209.05 | | | • | 01 | 30. |
| QUATION 2 | 83.69 | 6 - | -833 | 5.6 | _0 63 | 7 | 17 6730 | | -11 | 30. |
| | | | | | | | | | | |
| FLASH POINT(| DEG C) | ((| CC) ER RE | REF | | (c | UPPER | F | | |
| FLASH POINT() FLAMMABLE LIV | MITS VOL O. | LOWE PER 85 | ER RE | REF | | VOL | UPPER PER | REF | | |
| FLASH POINT(| DEG C) MITS VOL O. | LOWE PER 85 | ER REI | REF | | VOL DEG | UPPER PER F | REF PERCE | VI FL | |

ISOPROPYLCYCLOHEXANE

| FORMULA= C9H | 16 | | 5. | 958 | MW= 1 | 26 • 24 [,] | 4 VD= | 4.3532 | |
|--|---------------------------------|------------------------------------|------------------|---------|---------|----------------------|-------------|---------------------|---------|
| HEAT OF COMB OF LIQUID | USTION | l . | | KC | AL/MOL | E | CAL/GF | RAM REF | |
| OF LIQUID | | (N | ET) | 13 | 311.90 | | 10392 | 2. 11 | |
| HEAT OF VAPO | | | | | | | | 2. 11 | |
| | | | | | | 25 C | REF | 30 C | REF |
| DENSITY (GRA | | | | | | | | | |
| REFRACTIVE I | | | | | r | - 4386 | 1 11 | | |
| SURFACE TENS VISCOSITY (C | | | | 19 | | | | 25.51 | 19 |
| VAPOR PRESSU | | | | | | | | | |
| P 1 | | | | | | | | | |
| 1.6 | 38.3 | 60 | • 2 | | | | | 154.5 | |
| VAPOR PRESS | URE EQ | DITAU | N CO | EFF I | LIENTS | | | | |
| EQUATION 1 EQUATION 2 | 7 A | | 8 | 22 | 210 | 0.3 | D | MAX ERR | AIP |
| EQUATION 1 | 50 44 | 2 -1 | 7078 | 22 | 219. | 83 04 | 2 4500 | - 03 | 100. |
| FLASH POINT(| | | | | | | | | |
| | DEG C) | L OWE | C) | REF | | ((| UPPER | F | |
| | DEG C) | (C | C) R REF | REF | | ((| OC) RE | F | |
| FLAMMABLE LI | MITS VOL 0. | LOWE PER 85 | C) R REF 8(D) | REF | | ((| UPPER | F | |
| FLAMMABLE LI | DEG C) MITS VOL 0. | LOWE PER 85 | C) R REF 810 | REF | | VOL | UPPER PER R | EF | |
| FLASH POINT! FLAMMABLE LI AUTOIGNITION DEG C | DEG C) MITS VOL O. TEMPE | LOWE PER 85 | R REF 8(D | REF | | VOL | UPPER PER R | F | UEL |
| FLAMMABLE LI | DEG C) MITS VOL 0. TEMPE DELAY(| LOWE PER 85 RATUR SEC) | R REF 81D | REF | | VOL DEC | UPPER PER R | F | UEL |
| FLAMMABLE LI | DEG C) MITS VOL O. TEMPE DELAY(| LOWE PER 85 RATUR SEC) | R REF 81D | REF | MP (DE | VOL DEC | UPPER PER R | F F PERCENT F | UEL |

1-METHYL-3-ISOPROPYLCYCLOPENTANE

| FURHUEN- C91120 | C/H= 5 | .958 MW | = 126.244 | VD= 4 | .3532 | |
|---|--------------------|--------------|-----------|------------------|---------------|---------|
| | (NET) (GROSS) | 1310 1405 | .80 | 10383. | 11 | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | | 11 | .777 | 11 | | |
| VAPOR PRESSURE(MM P 1 10 T | | | | 400 | 760 142.2 | |
| VAPOR PRESSURE E A EQUATION 1 EQUATION 2 | QUATION C | OEFFICIE | NTS C | D | MAX ERR | AT P |
| | | | | | | |
| VOL | PER RE | F | | JPPER PER REF | | |
| VOL | PER REI .85 8() | F DD) | VOL 1 | PER REF | | |
| O AUTOIGNITION TEMP | PER REI | F | DEG K) | PER REF | ERCENT FL | JEL |

CIS-1,2-DIETHYLCYCLOPENTANE

| SYNONYMS. FORMULA= C9H1 | | /H= | | MW= 12 | | VD= | | |
|--|------------------------------|--------------------|-----------------|-------------|-----|----------------|--------------|------|
| HEAT OF COMBU OF LIQUID HEAT OF VAPOR | STION | INET GROSS |) 1) 1 | | | | | |
| DENSITY (GRAM REFRACTIVE IN SURFACE TENSI VISCOSITY (CS | 2 /ML) .7 DEX 1. ON | 0 C 960 4355 | REF 11 11 | | | | | |
| VAPOR PRESSUR P 1 T | E(MM HG 10 |)-TEM 30 | PERATU 4 | 0 1 | 00 | 400 | 760 153.6 | 11 |
| VAPOR PRESSU EQUATION 1 EQUATION 2 | RE EQUA | TION | COEFFI B | CIENTS C | | D | MAX ERI | RATP |
| | | | | | | | :F | |
| FLAMMABLE LIM | VOL PE | | EF | | | JPPER Per f | EF | |
| AUTOIGNITION DEG C D | | | | | DEG | C RE | F | |
| MAX FLAME VEL | | | STOI | EMP(DEG | | | PERCENT F | UEL |
| MIN IGN ENERG QUENCHING DIS | | |) 22 | | | | | |

TRANS-1, 2-DIETHYLCYCLOPENTANE

| FORMULA= C9H18 | C/H= 5 | .958 M | W= 126.244 | VD= | 4.3532 | |
|---|-------------|-------------|-----------------|-----------------|--------------|--------|
| HEAT OF COMBUSTION | (NET) | KCAL 131 | /MOLE 0.20 | CAL/GR 10378 | AM REF | |
| HEAT OF VAPORIZAT | ION(25 C) | | | 11120 | • 11 | |
| | | | | REF | | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | | | .7792 1.4270 | 11 | | |
| VAPOR PRESSURE(MM | HG) - TEMP | ERATURE | | | | |
| P 1 10 T | 30 | 40 | 100 | 400 | 760 147.5 | |
| VAPOR PRESSURE EGA | QUATION C | | ENTS | | MAX ERI | R AT P |
| EQUATION 2 | | | | | | |
| FLASH POINT (DEG C | | | (0) | | | |
| | | F | VOL (| UPPER | | |
| AUTOIGNITION TEMPE DEG C DELAY | | F | DEG | C REF | : | |
| MAX FLAME VEL(CM/S | SEC) FL | AME TEMP | P(DEG K) | V0L | PERCENT F | |
| MIN IGN ENERGY(MIL QUENCHING DISTANCE | | | REF | ABS MI | N REF | |

N-BUTYLCYCLOPENTANE

| ULAT OF COM | | | | | CAL 4CD | AM DEE | |
|---|---|--|---------------------|----------------------|-----------------|----------------------|--------------------|
| HEAT OF COM | BOZIION | 1 1 1 5 | TI I | AL/MULE 315 42 | LAL/GR | AM KEF | |
| OF LIQUID | | ICROS | () <u>1</u> | 410 10 | 11170 | 11 | |
| HEAT OF VAP | OR IZATI | ION (25 | C.) | 11.00 | 87.1 | 3 11 | |
| | | | | | | | |
| | | 20 C | REF | 25 C | REF | 40 C | REF |
| DENSITY (GR | AM/ML) | .7846 | 11 | .7808 | 11 | | |
| REFRACTIVE | INDEX | 1.4316 | 11 | 1.4293 | 11 | | |
| SURFACE TEN | SION | 24.93 | 19 | | | 23.04 | 19 |
| DENSITY (GR REFRACTIVE SURFACE TEN VISCOSITY (| CS) | 1.134 | 19 | | | .889 | 19 |
| VAPOR PRESS | | | | | | | |
| | | | | | | 760 | RFF |
| P 1 T 5.3 | 41.6 | 63. | 3 | 91.8 | . • • | 156.6 | 19 |
| VAPOR PRESEQUATION 1 EQUATION 2 | 7.051 66.92 | 15 -15 20 -7 | 8 42.98 635.4 | C 213.49 -7.02 | D 6.2998 | MAX ERR .63 05 | AT P 10. 30. |
| FLASH PUINT | (DEG C) | 166 |) REF | ((| DC) REI | | |
| | IMITS VOL | LOWER PER 1 | REF | | UPPER | | |
| | IMITS VOL | LOWER | REF | | UPPER | | |
| FLAMMABLE L | IMITS VOL • 8 | LOWER PER 1 | REF B(DD) | | UPPER | | |
| FLAMMABLE L | IMITS VOL • 8 | LOWER PER 1 | REF 8(DD) | VOL | UPPER PER RI | F | |
| FLAMMABLE L AUTOIGNITION DEG C | IMITS VOL B TEMPE DELAY | LOWER PER 1 | REF B(DD) | VOL DEC | UPPER PER RI | F | JEL |
| | IMITS VOL B TEMPE DELAY | LOWER PER 1 | REF B(DD) | VOL DEC | UPPER PER RI | PERCENT FL | JEL |
| FLAMMABLE L AUTOIGNITION DEG C | IMITS VOL .8 N TEMPE DELAY(| LOWER PER 19 PER | REF B(DD) | VOL DEC | UPPER PER RI | PERCENT FL | JEL |

I SOBUTYL CYCL OPENTANE

| SYNONYMS. FORMULA= C9H18 | C/H: | . 5. | | MW= 120 | 5.24 | 4 VD= | 4.3532 | | | |
|---|---------|-------------|-----------|-------------------|------|--------------------------|--------|-----|----|---|
| HEAT OF COMBUSTION | () | (TBN | KCA 13 | L/MOLE 11.80 | | CAL/GF 10391 11141 | . • | 11 | | |
| HEAT OF VAPORIZA | TIOHIZ | 5 C) | | | | 11141 | • | | | |
| DENSITY (GRAM/ML REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 1 .7809 | • | REF 11 | 25 • 77 | 769 | 11 | | | | |
| VAPOR PRESSURE(MI P 1 10 T | 3 | 30 | 40 | 10 | 00 | | 147. | | | |
| VAPOR PRESSURE I A EQUATION 1 EQUATION 2 | EQUATIO | N CO | | IENTS | | D | | ERR | AT | Р |
| FLAMMABLE LIMITS | | R REF | | • • • • • • • • • | | UPPER PER R | | | | |
| AUTOIGNITION TEMP DEG C DELAY | | | | - | DEC | G C RE | F | | | |
| | | | | | | | | | | |

SEC-BUTYLCYCLOPENTANE

| HEAT OF COMB | | | | | _/MOLE | | | | |
|--|--------------------|-----------------------------------|------------------|--------|------------|----------------|--------------------|---------|------------|
| | | IGRO | 1881 | | 5.98 | | | | |
| HEAT OF VAPO | RIZATI | ON (25 | C) | | | | | | |
| | | | | | 25 C | | | | |
| DENSITY (GRA REFRACTIVE I SURFACE TENS /ISCOSITY (C | NDEX ION S) | 1.435 | ; ;7 | 11 | 1.4332 | 11 | | | |
| APOR PRESSU | | | EMPE | RATURE | (DEG C) DA | TA | | | - |
| P 1 | | | | | 100 | | 760 154.4 | | |
| VAPOR PRESS | URE EQ | | N CO | EFFICI | ENTS | | | | |
| EQUATION 1 EQUATION 2 | A | | 8 | | С | D | MAX E | RR AT P | , |
| LASH POINT | | 10 | | | | | - | | _ |
| | | | C / | KET | ((| OC) RE | F | | |
| LAMMABLE LI | VOL | | R REF | | | UPPER | EF | | · - |
| LAMMABLE LI | VOL .8 | LOWE PER 5 | R REF 8(DI | | VOL | UPPER | EF | | - |
| AUTOIGNITION | VOL .8 TEMPE | LOWE PER 5 RATUR SEC) | R REF 8(DI | D) | VOL | UPPER PER R | EF | FUEL | _ |
| AUTOIGNITION DEG C | VOL .8 TEMPE | LOWE PER 5 RATUR SEC) | R REF 8(DI | D) | VOL DEG | UPPER PER R | EF F PERCENT | FUEL | _ |

T-BUTYLCYCLOPENTANE

| SYNONYMS. FORMULA= C9H | | /H= 5 | 5.958 | MW= 12 | 26.244 | V D= | 4.3532 | |
|--|----------------------------------|---------------------------|-----------------|------------------|--------|--------------------|---------------------------|--------|
| HEAT OF COMB | USTION (RIZATION | (NET) GROSS) (25 C) | 1 | 309.40 404.08 | | 10372 | RAM REF 2. 11 2. 11 | |
| DENSITY (GRAREFRACTIVE I SURFACE TENS VISCOSITY (C | M/ML) .7 NDEX 1. ION S) | 0 C 910 4338 | REF 11 11 | 2 | 5 C | KEF 11 11 | | |
| VAPOR PRESSUP 1 | RE(MM HG 10 |)-TEMP 30 | ERATUI 40 | 0 1 | 00 | 400 | 760 144.9 | |
| VAPOR PRESS EQUATION 1 EQUATION 2 | URE EQUA A | TION C | OEFFI | | | | MAX ER | R AT P |
| FLASH POINT(| DEG C) | (CC) | REF | | (0) | C) RE | F | |
| FLAMMABLE LI | VOL PE | OWER | F | | | UPPER PER R | | |
| AUTOIGNITION DEG C | | | F | | DEG | C RE | F | |
| MAX FLAME VE | L (CM/SEC |) FL | | | | | | FUEL |
| MIN IGN ENERG QUENCHING DI | | | | .H REF | | AR2 M | IN REF | |

DIETHYLCYCLOHEXANE

| SYNONYMS. FORMULA= C10H20 | C/H= 5.958 M | i= 140.271 | VD= 4.8 | 369 | |
|---|----------------------------|------------|---------|-------------|----------|
| HEAT OF COMBUSTION | | MOLE C | AL/GRAM | REF | |
| HEAT OF VAPORIZATIO | | | | | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | | | | | |
| VAPOR PRESSUREIMM F P 1 10 T | G)-TEMPERATURE | | 400 | 760 73.4 | REF 3 |
| VAPOR PRESSURE EQU | JATION COEFFICIE B | | D | MAX ERR | AT P |
| EQUATION 1 EQUATION 2 | | | | | |
| FLASH POINT(DEG C) | (CC) REF 49.0 3 | (OC) | REF | | |
| | LOWER PER REF 00 C 3 | VOL PE | | | |
| AUTOIGNITION TEMPER DEG C DELAYIS 242. | | DEG C | REF | * | |
| MAX FLAME VEL(CM/SE MIN IGN ENERGY(MILL QUENCHING DISTANCE(| STOICH | | VOL PE | | EL |

N-BUTYLCYCLOHEXANE

| HEAT OF COMB | USTION | | KC | AL/MOLE | CAL/GR | AM REF | |
|--|--------------------|--------------------|--------------|---------|----------------|---------|--------|
| OF LIQUID | | (NE | T) 14 | 455.58 | 10377 | . 11 | |
| | | IGROS | (S) 1! | 560.78 | 11127 | . 11 | |
| HEAT OF VAPO | RIZATI | ON (25 | C) | 11.96 | 85.2 | 6 11 | |
| | | | | 30 C | | | REF |
| DENSITY (GRA | | | | | | | |
| REFRACTIVE I | | | | | | | |
| SURFACE TENS | | | | | | • • • | |
| VISCOSITY (C | S) | | _+ | 1.406 | 19 | 1.069 | 19 |
| VAPOR PRESSU | | | | | | | |
| P 1 | | | | | | | |
| 7 20.3 | 59.U | 82. | 1 | 112.3 | | 180.9 | 19 |
| VAPOR PRESS | URE EQ | UATION | COEFFIC | CIENTS | | | |
| | A | | В | С | D | MAX ERR | AT P |
| EQUATION 1 | 7.087 | 6 -16 | 61.28 | 214.04 | | .54 | 10. |
| | | | | | | | |
| | | | | 214.04 | | | 10. |
| FLASH POINT(| DEG C) MITS VOL 1 | (CC | REF | · 0 | UPPER | F | |
| FLASH POINT(FLAMMABLE LI AUTOIGNITION DEG C | DEG C) MITS VOL 1 | LOWER PER 75 | REF E(DD) | \ C | UPPER PER R | EF | |

CIS-DECALIN

| HEAT OF COM | 4BUST [01 | 1 | KCAL | /MOLE | CAL/GRAP | 1 REF | |
|--|----------------------|--------------------------------|---|------------------------------|---------------------------------|---------|------|
| OF LIQUID | | (NET |) 140 | 8.24 | 10186. | 11 | |
| HEAT OF VAL | | ION(25 C |) | | 10871. | | |
| | | 20 C | REF | 25 C | REF | 30 C | REF |
| DENSITY (GF | RAM/ML) | .8965 | 11 | .8925 | 11 | .8885 | 19 |
| REFRACTIVE Surface ter | INDEX | 1.4810 | 11 | 1.4/88 | 11 | 31.36 | 19 |
| VISCOSITY | (CS-) | | | | | | |
| VAPOR PRESS | SURE (MM | HG)-TEM | PERATURE | IDEG C) D | ATA | | |
| P 1 | | | | | | | |
| T 22.5 | | | | | 169.9 | | |
| VAPOR PRES | SSURE E | MOITAU | COEFFICI | ENTS | | | |
| EQUATION 1 | A 7 351 | | В | C 24 35 | D | MAX ERR | AT P |
| EQUATION 1 | 64.00 | 19 -197 12 -74 | 7.31 | 240.33 _6 73 | 75 5424 | -2.10 | 400 |
| COUNTION 2 | | | | | | 02 | 700. |
| | TIDEG CI | (CC) | | (| | | |
| FLASH POINT | T(DEG C) | (CC) 58.0 LOWER PER R | REF (1,3,4 | (4) (JJ) | OC) REF UPPER PER REF | | |
| FLASH POINT | T(DEG C) | (CC) 58.0 LOWER PER R | REF (1,3,4 | (4) (JJ) | OC) REF | | |
| FLASH POINT | IMITS VOL 7 AT | LOWER PER R | REF (1,3,4 | (4) (JJ) | OC) REF UPPER PER REF | | |
| FLASH POINT FLAMMABLE L AUTOIGNITIO | INTS VOL. 7 AT | LOWER PER R 100 C | REF (1,3,4 | (4)(JJ) VOL 4.9 AT | UPPER PER REF | | |
| FLASH POINT FLAMMABLE L AUTOIGNITIC DEG C | INTS VOL. 7 AT | LOWER PER R 100 C | REF (1,3,4 | (4)(JJ) VOL 4.9 AT | OC) REF UPPER PER REF 100 C 3(| JJ) | |
| FLASH POINT | INTS VOL. 7 AT | LOWER PER R 100 C | REF (1,3,4 | (4)(JJ) VOL 4.9 AT | UPPER PER REF | JJ) | |
| FLASH POINT FLAMMABLE L AUTOIGNITIO DEG C 250. 271. | INTS VOL. 7 AT | LOWER PER R 100 C | REF (1,3,4 | VOL 4.9 AT | OC) REF UPPER PER REF 100 C 3(| ·) (11) | |
| FLASH POINT FLAMMABLE L AUTOIGNITIO DEG C 250. 271. | INTS VOL. 7 AT | LOWER PER R 100 C | REF (1,3,4) EF (JJ) 6(JJ) | VOL 4.9 AT | UPPER PER REF 100 C 3 C | ·) (11) | |
| FLASH POINT FLAMMABLE L AUTOIGNITIC DEG C 250. 271. 272. | INITS VOL .7 AT | LOWER PER R 100 C | REF (1,3,4) EF (JJ) 6(JJ) 9(JJ) 4(JJ) | VOL 4.9 AT DE 26 | OC) REF UPPER PER REF 100 C 3(|) (11) | JEL. |

TRANS-DECALIN

| HEAT C | F C | OMBUST 1 | N | | KCA | L/MOLE | CAL/GF | RAM REF | |
|-------------------------------|--|------------------------|-------------------|--|-------------|---------------------|---------------------------|------------------|------|
| OF LIC | DIU | | | (NET) | 14 | 05.55 | 10166 | . 11 | |
| | | | | | | 00.23 | 10851 | 11 | |
| HEAT C |)F V | APORIZAT | ION | 25 C) | | | | | |
| | | | 20 | C | REF | 25 C | REF | 30 C | REF |
| DENSIT | Y (| GRAM/ML! | .86 | 99 | 11 | .8659 | 11 | .8619 | 19 |
| REFRAC | TIVE | E INDEX | 1.4 | 695 | 11 | 1.4672 | 11 | 1.4650 | 19 |
| SURFAC VISCOS | E TI | (CS) | 28. | 82 | 19 | | | 27.77 | |
| | | | | | ERATUR | E(DEG C) D | | | |
| P | 1 | 10 | | 30 | 40 | 100 | 400 | 760 | REF |
| T | 8 | 47.2 |) | | 85. | 7 114.6 | 160.1 | 186.7 | 21 |
| | | | | | | IENTS | | | |
| TAPUN | r r r (| A | QUAT. | A PIOL | JE1 7 1C | | D | MAY FRD | AT P |
| FOLIATI | ON | 1 8.94 | 02 - | - 3544 | . 78 | 397.21 | J | MAX ERR -5.85 | 10. |
| EQUATI | ON | 2 -3.4 | 99 | -329 | 1.2 | 2.78 | 74.4129 | -5.64 | 400. |
| | | NTIDEG C | .) | (CC) | REF | ,4)(JJ) | | | |
| FLASH | POII | NTIDEG C | LOI PER | (CC) 58.0 VER REI | REF (1,3 | ,4)(JJ) | OC) RE | :F | |
| FLASH FLAMMA | POIN | LIMITS VOL .7 AT | LON PER 100 | ICC) 58.0 WER REI C 3 | REF (1,3 | ,4)(JJ) VOL 4.9 AT | OC) RE | EF 3(JJ) | |
| FLASH FLAMMA | POIN | LIMITS VOL .7 AT | LON PER 100 | ICC) 58.0 VER REI C 3 | REF (1,3 | ,4)(JJ) VOL 4.9 AT | OC) RE UPPER PER R 10G C | EF 3(JJ) | |
| FLASH FLAMMA AUTOIG | BLE SNITI | LIMITS VOL .7 AT | LOI PER 100 | ICC) 58.0 VER REI C 3 | REF (1,3 | VOL 4.9 AT | OC) RE UPPER PER R 10G C | EF 3(JJ) | |
| FLASH FLAMMA AUTOIG D 2 2 | POINT IN THE STATE OF THE STATE | LIMITS VOL .7 AT | LOI PER 100 | (CC) 58.0 HER RE(C 3) | REF (1,3 | VOL 4.9 AT | OC) RE UPPER PER R 10G C | EF 3(JJ) | |
| FLASH FLAMMA AUTOIG D 2 2 2 2 | BLE SNITI | LIMITS VOL .7 AT | LOI PER 100 | (CC) 58.0 HER RE(C 3) JRE JRE 3 (, | REF (1,3 | VOL 4.9 AT | OC) RE UPPER PER R 10G C | EF 3(JJ) | |

1-METHYL-2-T-BUTYLCYCLOHEXANE

QUENCHING DISTANCE (CM)=

SYNONYMS. FORMULA = C11H22 C/H= 5.958 MW= 154.298 VD= 5.3206 KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION (25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE (MM HG)-TEMPERATURE (DEG C) DATA P 1 10 30 40 100 400 760 REF VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT (DEG C) (CC) REF (OC) REF FLAMMABLE LIMITS LOWER UPPER VOL PER PEF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF 314. 12. 49 MAX FLAME VEL (CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) =

1-METHYL-3-T-BUTYLCYCLOHEXANE (LOW BOILING) SYNONYMS. FORMULA= C11H22 C/H= 5.958 MW= 154.298 VD= 5.3206 KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA 1 10 30 40 100 400 760 REF T VAPOR PRESSURE EQUATION COEFFICIENTS D MAX ERR AT P C A B EQUATION 1 EQUATION 2 FLASH POINTIDEG C) (CC) REF (OC) REF FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF 291. 24. 49 DEG C REF MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) =

QUENCHING DISTANCE(CM)=

1-METHYL-3-T-BUTYLCYCLOHEXANE (HIGH BOILING) SYNONYMS. FORMULA = C11H22 C/H= 5.958 MW= 154.298 VD= 5.3206 KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA 1 10 30 40 100 400 760 T VAPOR PRESSURE EQUATION COEFFICIENTS D MAX ERR AT P A B C EQUATION 1 EQUATION 2 FLASH POINTIDEG C) (CC) REF (OC) REF UPPER FLAMMABLE LIMITS LOWER ITS LOWER UPPER VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF 304. 12. 49 MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) =

QUENCHING DISTANCE(CM) =

BICYCLOHEXYL

| SYNONYMS. DICYCLOHEXYL FORMULA= C12H22 C/H= | 6.500 MW= | 166.309 VD= | 5.7348 | |
|--|---------------------|----------------------------------|--------------|------|
| HEAT OF COMBUSTION (NET (GROS HEAT OF VAPORIZATION(25 |) SS) | OLE CAL! | GRAM REF | |
| DENSITY (GRAM/ML) .8917 REFRACTIVE INDEX 1.4766 SURFACE TENSION VISCOSITY (CS) | 2 | | | |
| VAPOR PRESSURE(MM HG)-TEP 1 10 30 | 40 | G C) DATA | 760 240•0 | |
| VAPOR PRESSURE EQUATION A EQUATION 1 EQUATION 2 | COEFFICIENT | S | MAX ERR | AT P |
| | REF 1.5 1 0 3 | (OC) | REF | |
| FLAMMABLE LIMITS LOWER VOL PER .7 AT 100 C | | UPPER VOL PER 5.1 AT 150 C | REF | |
| AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) 104.5 | | DEG C (244. | REF 3 | |
| MAX FLAME VEL(CM/SEC) MIN IGN ENERGY(MILLIJOUL | STOICH R | EG K) VI | | JEL |
| QUENCHING DISTANCE (CM)= | | | | |

DIMETHYLDECALIN (ISOMERS)

SYNONYMS. FORMULA= C12H22 C/H= 6.500 MW= 166.309 VD= 5.7348 KCAL/MOLE CAL/GRAH REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF T 235.0 3 VAPOR PRESSURE EQUATION COEFFICIENTS

R
C
D
MAX ERR AT P EQUATION 1 ECUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF 84.5 3(KK) FLAMMABLE LIMITS LOWER

VOL PER REF

.7 AT 93.5 C 3

UPPER

VOL PER REF

5.3 AT 149 C 3 AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF 234. MAX FLAME VEL (CM/SEC) FLAME TEMP (DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE)= QUENCHING DISTANCE(CM)=

N-BUTYLDECAL IN

SYNONYMS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA 1 10 30 40 100 400 760 REF VAPOR PRESSURE EQUATION COEFFICIENTS D MAX ERR AT P A B C EQUATION 1 ECUATION 2 FLASH POINT (DEG C) (CC) REF (OC) REF 260.0 1,3,4 FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF MAX FLAME VEL (CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE (CM) =

T-BUTYLDECALIN

SYNONYMS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF VAPOR PRESSURE EQUATION COEFFICIENTS D MAX ERR AT P A B C EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF 338.0 1,3,4 UPPER FLAMMABLE LIMITS LOWER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE (CM) =

MONOISOPROPYLBICYCLOHEXYL

SYNONYMS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF 280.0 3 VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF 124.0 3 FLAMMABLE LIMITS LOWER UPPER

VOL PER REF

VOL PER REF

VOL PER REF

4-1 AT 204-5 C 3 AUTOIGNITION TEMPERATURE DEG C REF DEG C DELAY(SEC) REF 228. 3 MAX FLAME VEL (CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY (MILLIJOULE) = QUENCHING DISTANCE(CM)=

ETHENE

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SYNONYMS. ETHYLENE, ELAYL, ETHERIN
FORMULA= C2H4 C/H= 5.958 MW= 28.054 VD= .9674
THEAT OF VAPORIZATION(25 C)

REAL UP COMBUSTION KCAL/MOLE CAL/GRAM REF
11271. 11
1108053 337.24 12021. 11
                              ---------
                       20 L REF
DENSITY (GRAM/ML)
REFRACTIVE INDEX
SURFACE TENSION 16.5 (8)(60)(R)
VISCOSITY (CS)
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
P 1 10 30 40 100 400 760
T -168.3 -153.2 -141.3 -131.8 -113.9 -103.7
VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P

EQUATION 1 .8062 -21.19 95.01 1145.45 1.

ECUATION 2 49.623 -2529.8 -5.48 2.5441 .14 40.
FLASH POINT(DEG C) (CC) REF (OC) REF -136. (8)(9)
                          -120.5 4
FLAMMABLE LIMITS LOWER

VOL PER REF

2.6 13(V)

2.7 4,(8)(15)
                                         UPPER
                                              VOL PER REF
                                               32. 3,12(A)
                                                  34. 1,4,(8)(15)
41. 13(V)
                    3.0
                            1
66(B)
                    2.90
                                                   79.9 66(B)
                             66
                    3.05
                                                  28.6 66
                             3,12(A),67
                    3.1 3.12(A).63
3.0 12(A,B)
                                                  80. 12(A,B)
AUTOIGNITION TEMPERATURE
      DEG C DELAY(SEC) REF
543. 1
450. 3,4
                                               DEG C REF
490. (22)(32)
485. (22)(32)(B)
MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL
68.3 (69) 2387 (55) 7.40 (69)
STOICH REF ABS MIN REF
MIN IGN ENERGY(MILLIJOULE) = .096 (7)(57) .124 58
QUENCHING DISTANCE(CM) = .13 7
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PROPENE

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SYNONYMS. PROPYLENE
FORMULA= C3H6 C/H= 5.958 MW= 42.081 VD= 1.4511
HEAT OF COMBUSTION KCAL/MOLE CAL/GRAM REF
OF GAS (NET) 460.43 10941. 11
(GROSS) 491.99 11691. 11
HEAT OF VAPORIZATION(25 C)
20 C REF 25 C REF
DENSITY (GRAM/ML) .5139 11(D) .5053 11(D)
REFRACTIVE INDEX
SURFACE TENSION 16.7 (8)(60)(R)
VISCOSITY (CS)
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
P 1 10 30 40 100 400 760 REF
T -131.9 -112.1 -96.5 -84.1 -60.9 -47.7 21
VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P

EQUATION 1 1.7188 4.98 106.74 3217.93 1.

EQUATION 2 55.901 -3571.8 -6.18 5.5142 -.28 10.
FLASH POINT(DEG C) (CC) REF (OC) REF -108. 4,(8)(9)
                  TS LOWER UPPER VOL PER REF
FLAMMABLE LIMITS LOWER
                           4,(8)(15),66 10. (8)(15)
(7)(14)(H) 12.1 (7)(14)(H)
13(V) 11.1 13(V),66
66(B) 52.8 66(B)
                   2.0
                    2.13
                    2.2
                    2.10
                             3,12(A),71(AK) 10.3 3,12(A),71(AK)
                    2.4
                                                   11.1 4
                    2.1 12(A,B)
                                                   53. 12(A.B)
AUTOIGNITION TEMPERATURE
      DEG C DELAY(SEC) REF
410. 3
455. 28(AL)
                                               DEG C REF
497. 1,6
MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL
43.8 (69) 2341 (55) 5.04 (69)

STOICH REF ABS MIN REF
MIN IGN ENERGY(MILLIJOULE) = .282 (7)(57)
MIN IGN ENERGY(MILLIJOULE) = .282 (7)(57)
QUENCHING DISTANCE(CM) = .20 7
QUENCHING DISTANCE(CM)= .20
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1-BUTENE

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SYNONYMS. ALPHA-BUTYLENE, ETHYLETHYLENE
KCAL/MOLE CAL/GRAM REF
NET) 602.50 10738. 11
(055) 644.58 11488. 11
(5 C) 4.87 86.80 11
HEAT OF COMBUSTION
                      (NET)
OF LIQUID
                    (GROSS)
HEAT OF VAPORIZATION(25 C)
20 C REF 25 C REF
DENSITY (GRAM/ML) .5951 11(D) .5888 11(D)
REFRACTIVE INDEX
SURFACE TENSION 12.53 (8)(60)
VISCOSITY (CS)
VAPOR PRESSURE (MM HG)-TEMPERATURE (DEG C) DATA
P 1 10 30 40 100 400 760 T -104.8 -81.6 -63.4 -48.9 -21.7 -6.3
VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P

EQUATION 1 6.8402 -925.78 240.14 .18 10.

EQUATION 2 61.048 -4415.7 -6.79 7.6693 .11 40.

FLASH POINT(DEG C) (CC) REF (OC) REF

-80. 1,4,(8)(9)
FLAMMABLE LIMITS LOWER VOL PER REF
                                          UPPER
VOL PER REF
                         REF
12(A)
                 1.6 12(A)
1.6 3.4.(8)(15)
                                           9.3
                                                    12(A)
                                                    3,(8)(60)
                                             9.3
                 1.6 3,4,(8)(15)
1.7 1,13(V)
2.0 12(A,LL)
                                            9.0
                                            9.6
                                                    4,12(A,LL)
                                            11.
                                                   13(V)
                 1.8 12(A,B)
                                                   12(A,B)
                                             58.
AUTOIGNITION TEMPERATURE
     DEG C DELAY(SEC) REF
                                          DEG C REF
                                            443. 28(LL,AL)
     384.
                          3,4
MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL
43.2 (69) 2320 (55) 3.87 (69)
STOICH REF ABS MIN REF
MIN IGN ENERGY(MILLIJOULE)=
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QUENCHING DISTANCE (CM) =

CIS-2-BUTENE

| HEAT OF COMBUSTION | NO (1) | IET) 60 | /MOLE 0.43 | CAL/GRAI 10701. | 11 | |
|---|----------------------------------|----------------------------------|-----------------------|--------------------------------------|------------|------|
| HEAT OF VAPORIZA | TION(25 |)\$\$) 64 5 C) | 5.30 | 94.46 | 11 | |
| | 20 0 | REF | 25 C | REF | 30 C | REF |
| DENSITY (GRAM/ML REFRACTIVE INDEX | | 11(0) | •0124 | 11(0) | . 5094 | 20 |
| SURFACE TENSION VISCOSITY (CS) | | 20 | | | 13.90 | 20 |
| APOR PRESSURE(M | 4 HG)-1 | | | | | |
| P 1 10 | <u>.</u> | 30 40 -54 7 | 100 | 400 -12 0 | 760 2.7 | REF |
| T -96.4 -73.4 | | - | -37.0 | -12.0 | J• (| |
| VAPOR PRESSURE | | | | _ | | |
| A | 521 - | B | C 227 70 | D | MAX ERR | AT P |
| EQUATION 1 6.69 EQUATION 2 99.9 | 520 - | 5905.2 | -12.78 2 | 9.2039 | -1.06 | 400. |
| ELASH POINTIDEG (| | | | C) REF | | |
| | -1 | '3.5 10(DD | | | | |
| FLASH POINT(DEG (| -7 LOWE | '3.5 10(DD |) | UPPER | | |
| FLAMMABLE LIMITS VOL | -7 LOWE PER | '3.5 10(DD |) VOL | UPPER PER REF | | |
| FLAMMABLE LIMITS VOL | -7 LOWE PER | 73.5 10(DD | VOL 55 | UPPER PER REF | .B) | |
| FLAMMABLE LIMITS VOL | LOWE PER 1.7 2.0 | R REF 12(A,B) 12(A,LL) 6 | VOL 55 9. | UPPER PER REF 12(A 12(A | ,B) | |
| FLAMMABLE LIMITS VOL | LOWE PER 1.7 2.0 | 73.5 10(DD | VOL 55 9• | UPPER PER REF 12(A 12(A | ,B) | |
| FLAMMABLE LIMITS VOL | LOWE PER 1.7 2.0 1.7 | R REF 12(A,B) 12(A,LL) 6 4,12(A) | VOL 55 9. | UPPER PER REF 12(A 12(A | ,B) | |
| FLAMMABLE LIMITS VOL | LOWE PER 1.7 2.0 1.7 | R REF 12(A,B) 12(A,LL) 6 4,12(A) | VOL 55 9. 9. | UPPER PER REF 12(A 6 12(A 0 6 7 4,12 | ,B) | |
| FLAMMABLE LIMITS VOL 1 2 2 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | LOWE PER 1.7 2.0 1.7 | R REF 12(A,B) 12(A,LL) 6 4,12(A) | VOL 55 9. 9. | UPPER PER REF 12(A 12(A | (A) | |

TRANS-2-BUTENE

| | MBUSTIO | N (N | ET) 59 | L/MOLE 99.58 | 10686 | . 11 | |
|--|------------------------------------|----------------------------------|--|--|-------------------------------|---------------------------------|------|
| HEAT OF VA | | ION (25 | C) | 41.66 5.15 | 91.7 | 9 11 | |
| DENCITY (C | | 20 C | REF | 25 C •5984 | REF | 30 C | REF |
| REFRACTIVE | INDEX | | | • 3 70 % | 11107 | • 7767 | 20 |
| SURFACE TE VISCOSITY | | 13.43 | 20 | | | 12.27 | 20 |
| | SURE(MM | HG)-T | | E(DEG C) DAT | | 740 | 0.55 |
| | | | | 100 6 -42.7 | | | |
| | | | | | | | |
| VAPOR PRE | | | | | D | MAY EDD | AT D |
| EQUATION 1 | 6.66 | 19 - | 878.86 | C 231.36 | U | -1.37 | 10. |
| ENHATION 2 | 90 5 | 22 - | 5404 4 | -11.42 25 | 5.8338 | - 91 | 10. |
| | |) (C | | (00 | | | |
| FLASH POIN | T(DEG C |) (C) -7: | C) REF 3.5 10(D | (00 | C) REF | | |
| FLASH POIN | T(DEG C |) (C) -7: | C) REF 3.5 10(DE | (00 | C) REF | | |
| | T(DEG C | LOWEI | C) REF 3.5 10(DE | (0 ()) VOL F | JPPER RE | | |
| FLASH POIN | T(DEG C | LOWEI | REF 3.5 10(DE | (0 ()) VOL F | JPPER PER 7 3 | F | |
| FLASH POIN | LIMITS VOI | LOWEI PER 8 | REF 3 6,12(A) 12(A,LL) | (00 0) VOL F 9.7 9.7 | JPPER REF | EF | |
| FLASH POIN | LIMITS VOI | LOWEI PER 8 | REF 3 6,12(A) 12(A,LL) | (00 0) VOL F 9.7 | JPPER REF | EF | |
| FLASH POIN | LIMITS VOI 1. | LOWEI PER 8 | R REF 3 6,12(A) 12(A,LL) 12(A,B) | (00 0) VOL F 9.7 9.7 | JPPER REF | EF | |
| FLASH POIN FLAMMABLE | LIMITS VOI 1. | LOWEI PER 8 8 0 | R REF 3 6,12(A) 12(A,B) | (00 VOL F 9.7 9.7 9.6 55. | JPPER REF | F 12(A) (A, LL) (A, B) | |
| FLASH POIN FLAMMABLE | LIMITS VOI 1. 2. 1. ON TEMPE | LOWEI PER 8 8 0 | R REF 3 6,12(A) 12(A,B) | (00 0) VOL F 9.7 9.6 55. | JPPER PER RE7 3 7 6,12 6 12 6 | EF 12(A) (A,LL) (A,B) | |
| FLASH POIN FLAMMABLE AUTOIGNITI DEG C 324. | LIMITS VOI 1. 2. 1. ON TEMPE DELAY | LOWEI PER 8 8 0 7 | R REF 3 6,12(A) 12(A,LL) 12(A,B) | VOL F 9.7 9.7 9.6 55. | UPPER PER RET 126 | F 12(A) (A,LL) (A,B) | |

2-METHYLPROPENE

| FORMULA= C4H8 C/H= | 5.958 MW= 5 | | | |
|--------------------------------------|-------------------------|----------------|---------|------|
| HEAT OF COMBUSTION OF LIQUID (N | KCAL/MOLE | CAL/GRAM | REF | |
| (GRO | SS) 640.52 | 11416. | 11 | |
| HEAT OF VAPORIZATION(25 | C) 4.92 | 87.69 | 11 | |
| | REF 2 | 5 C REF | 30 C | REF |
| SURFACE TENSION 12.27 VISCOSITY (CS) | | | 11.22 | 20 |
| VAPOR PRESSURE (MM HG)-T | EMPERATURE (DEG | | | |
| P 1 10 3 T -105.1 -82.0 -67 | | | | |
| | | | | |
| VAPOR PRESSURE EQUATIO | N COEFFICIENTS B C | D | MAX FRR | AT P |
| A EQUATION 1 6.8426 - | 923.70 240.0 | 5 | 04 | 30. |
| EQUATION 2 64.460 - | | | .07 | 30. |
| FLASH POINT(DEG C) (C -7 | C) REF 6. (8)(9) | (OC) REF | | |
| FLAMMABLE LIMITS LOWE | R | UPPER | | |
| VOL PER | REF | VOL PER REF | | |
| 1.8 | 3,4,12(A) | 8.6 3,4, | 12(A) | |
| AUTOIGNITION TEMPERATUR | | | | |
| DEG C DELAY(SEC) 465. | REF 1,3,4 | DEG C REF | | |
| MAX FLAME VEL(CM/SEC) | | | | IEL |
| 37.5 (69) | 2315 (55) STOICH REF | 3.8 ABS MIN | REF | |

1-PENTENE

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SYNONYMS. PROPYLETHYLENE, METHYLBUTENE, ALPHA-N-AMYLENE
HEAT OF COMBUSTION KCAL/MOLE CAL/GRAM REF
OF LIQUID (NET) 748.16 10667. 11
(GROSS) 800.76 11417. 11
                                                10667. 11
11417. 11
86.80 11
HEAT OF VAPORIZATION(25 C) 6.09
20 C REF 25 C REF
DENSITY (GRAM/ML) .64050 11 .63533 11
REFRACTIVE INDEX 1.37148 11 1.36835 11
SURFACE TENSION 15.57 20 15.45 11
VISCOSITY (CS) .373 (8)(60)
_______
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA

P 1 10 30 40 100 400 760 REF

T -80.4 -54.5 -34.1 -17.7 12.8 30.1 21
______
VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P

EQUATION 1 6.7962 -1020.95 230.63 .33 100.

EQUATION 2 74.543 -5527.4 -8.72 16.5149 -.34 400.
FLASH POINT (DEG C) (CC) REF (OC) REF -51. 10(DD) -18. 1,3,4
FLAMMABLE LIMITS LOWER

VOL PER REF

1.4 4,(8)(15)

1.5 3 7.7 1

1.6 1 10.0 7

1.27 7
AUTOIGNITION TEMPERATURE
     MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 42.6 (69) 2316 (55) 3.07 (69) STOICH REF ABS MIN REF
MIN IGN ENERGY(MILLIJOULE) =
QUENCHING DISTANCE(CM)=
```

CIS-2-PENTENE

| SYNONYMS. SYM-METH FORMULA= C5H10 | | 70.135 VD= | |
|---|--|---|---------------------------|
| HEAT OF COMBUSTION OF LIQUID | (NET) 746. (GROSS) 798. | | |
| HEAT OF VAPORIZATE | UN125 () 6.4 | 41 91.: | 19 II |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 20 C REF .6556 11 1.3830 11 17.38 (8)(60) | | |
| VAPOR PRESSURE(MM 10 | HG)-TEMPERATURE(DI 30 40 -32.7 | EG C) DATA 100 400 -11.4 | |
| VAPOR PRESSURE EQUATION 1 6.879 EQUATION 2 71.03 | | TS D D D D D D D D D D D D D D D D D D D | MAX ERR AT P •19 1002 30. |
| FLASH POINT(DEG C) | | | |
| | | UPPER | |
| VOL | PER REF | VOL PER R | REF |
| 1 | LOWER PER REF 33 7 4 8(DD) 5 12(A,NN) | 9.35 7 8.7 12 | (A,NN) |
| AUTOIGNITION TEMPER DEG C DELAY(| RATURE | DEG C RE | F |
| MAX FLAME VEL (CM/SE 43.1 (62) | 2242 (62) | | 3.38 (73) |
| MIN IGN ENERGY(MILL QUENCHING DISTANCE | _IJOULE)= .82 (| | (7)(59)(F) •15 7 |

TRANS-2-PENTENE

| Company | 11376. 11 90.97 11 C REF 1 11 61 11 2 11 DATA 400 760 REF |
|--|--|
| 20 C REF 25 DENSITY (GRAM/ML) .6482 11 .643 REFRACTIVE INDEX 1.3793 11 1.37 SURFACE TENSION 16.90 (8)(60) 16.4 VISCOSITY (CS) VAPOR PRESSURE (MM HG) - TEMPERATURE (DEG C) 1 10 30 40 100 1 -76.0 -49.4 -33.3 -12. VAPOR PRESSURE EQUATION COEFFICIENTS A B C EQUATION 1 6.9112 -1086.24 233.17 EQUATION 2 68.128 -5427.0 -7.68 FLASH POINT (DEG C) (CC) REF -18. 1 -45.5 10(DD) RELAMMABLE LIMITS LOWER VOL PER REF 1.4 8(DD) 1.5 12(A,NN) | 90.97 11 C REF 1 11 61 11 2 11 DATA 400 760 REF 0 36.4 20 |
| 20 C REF 25 DENSITY (GRAM/ML) .6482 11 .643 REFRACTIVE INDEX 1.3793 11 1.37 SURFACE TENSION 16.90 (8)(60) 16.4 /ISCOSITY (CS) /APOR PRESSURE (MM HG) - TEMPERATURE (DEG C) 1 10 30 40 100 -76.0 -49.4 -33.3 -12. VAPOR PRESSURE EQUATION COEFFICIENTS A B C EQUATION 1 6.9112 -1086.24 233.17 EQUATION 2 68.128 -5427.0 -7.68 FLASH POINT (DEG C) (CC) REF -18. 1 -45.5 10(DD) RELAMMABLE LIMITS LOWER VOL PER REF 1.4 8(DD) 1.5 12(A.NN) | C REF 1 11 61 11 2 11 DATA 400 760 REF 0 36.4 20 |
| DENSITY (GRAM/ML) .6482 11 .643 REFRACTIVE INDEX 1.3793 11 1.37 SURFACE TENSION 16.90 (8)(60) 16.4 VISCOSITY (CS) VAPOR PRESSURE (MM HG)-TEMPERATURE (DEG C) 1 10 30 40 100 1 -76.0 -49.4 -33.3 -12. VAPOR PRESSURE EQUATION COEFFICIENTS A C EQUATION 1 6.9112 -1086.24 233.17 EQUATION 2 68.128 -5427.0 -7.68 ELASH POINT(DEG C) (CC) REF -18. 1 -45.5 10(DD) RELAMMABLE LIMITS LOWER VOL PER REF 1.4 8(DD) 1.5 12(A.NN) | 1 11 61 11 2 11 DATA 400 760 REF 0 36.4 20 |
| REFRACTIVE INDEX 1.3793 11 1.37 SURFACE TENSION 16.90 (8)(60) 16.4 (ISCOSITY (CS) (APOR PRESSURE (MM HG)-TEMPERATURE (DEG C) 1 10 30 40 100 1 -76.0 -49.4 -33.3 -12. VAPOR PRESSURE EQUATION COEFFICIENTS A B C EQUATION 1 6.9112 -1086.24 233.17 EQUATION 2 68.128 -5427.0 -7.68 ELASH POINT(DEG C) (CC) REF -18. 1 -45.5 10(DD) ELAMMABLE LIMITS LOWER VOL PER REF 1.4 8(DD) 1.5 12(A,NN) | 61 11 2 11 DATA 400 760 REF 0 36.4 20 |
| SURFACE TENSION 16.90 (8)(60) 16.4 //ISCOSITY (CS) //APOR PRESSURE (MM HG)-TEMPERATURE (DEG C) 1 10 30 40 100 -76.0 -49.4 -33.3 -12. VAPOR PRESSURE EQUATION COEFFICIENTS A B C EQUATION 1 6.9112 -1086.24 233.17 EQUATION 2 68.128 -5427.0 -7.68 ELASH POINT(DEG C) (CC) REF -18. 1 -45.5 10(DD) ELAMMABLE LIMITS LOWER VOL PER REF VOL PER REF 1.4 8(DD) 1.5 12(A.NN) | DATA 400 760 REF 0 36.4 20 |
| VAPOR PRESSURE (MM HG)-TEMPERATURE (DEG C) 1 10 30 40 100 1 -76.0 -49.4 -33.3 -12. VAPOR PRESSURE EQUATION COEFFICIENTS A B C EQUATION 1 6.9112 -1086.24 233.17 EQUATION 2 68.128 -5427.0 -7.68 ELASH POINT (DEG C) (CC) REF -18. 1 -45.5 10 (DD) ELAMMABLE LIMITS LOWER VOL PER REF VOL PER REF 1.4 8 (DD) 1.5 12 (A.NN) | DATA 400 760 REF 0 36.4 20 |
| 1 10 30 40 100 1 -76.0 -49.4 -33.3 -12. VAPOR PRESSURE EQUATION COEFFICIENTS A B C EQUATION 1 6.9112 -1086.24 233.17 EQUATION 2 68.128 -5427.0 -7.68 FLASH POINT(DEG C) (CC) REF -18. 1 -45.5 10(DD) FLAMMABLE LIMITS LOWER VOL PER REF 1.4 8(DD) 1.5 12(A,NN) | 400 760 REF 0 36.4 20 |
| VAPOR PRESSURE EQUATION COEFFICIENTS A B C EQUATION 1 6.9112 -1086.24 233.17 EQUATION 2 68.128 -5427.0 -7.68 FLASH POINT(DEG C) (CC) REF -18. 1 -45.5 10(DD) FLAMMABLE LIMITS LOWER VOL PER REF 1.4 8(DD) 1.5 12(A,NN) | 0 36.4 20 |
| VAPOR PRESSURE EQUATION COEFFICIENTS A B C EQUATION 1 6.9112 -1086.24 233.17 EQUATION 2 68.128 -5427.0 -7.68 FLASH POINT(DEG C) (CC) REF -18. 1 -45.5 10(DD) FLAMMABLE LIMITS LOWER VOL PER REF VOL PER REF 1.4 8(DD) 1.5 12(A.NN) | 0 36.4 20 |
| A B C EQUATION 1 6.9112 -1086.24 233.17 EQUATION 2 68.128 -5427.0 -7.68 FLASH POINT(DEG C) (CC) REF -18. 1 -45.5 10(DD) FLAMMABLE LIMITS LOWER VOL PER REF 1.4 8(DD) 1.5 12(A.NN) | |
| EQUATION 1 6.9112 -1086.24 233.17 EQUATION 2 68.128 -5427.0 -7.68 ELASH POINT(DEG C) (CC) REF -18. 1 -45.5 10(DD) ELAMMABLE LIMITS LOWER VOL PER REF 1.4 8(DD) 1.5 12(A,NN) | |
| EQUATION 2 68.128 -5427.0 -7.68 LASH POINT(DEG C) (CC) REF -18. 1 -45.5 10(DD) LAMMABLE LIMITS LOWER VOL PER REF 1.4 8(DD) 1.5 12(A,NN) | .08 10 |
| LASH POINT(DEG C) (CC) REF -18. 1 -45.5 10(DD) LAMMABLE LIMITS LOWER VOL PER REF 1.4 8(DD) 1.5 12(A,NN) | 13.5161 .06 30 |
| -45.5 10(DD) LAMMABLE LIMITS LOWER VOL PER REF V 1.4 8(DD) 1.5 12(A.NN) | |
| LAMMABLE LIMITS LOWER VOL PER REF 1.4 8(DD) 1.5 12(A.NN) | |
| VOL PER REF V 1.4 8(DD) 1.5 12(A,NN) AUTOIGNITION TEMPERATURE | |
| VOL PER REF V 1.4 8(DD) 1.5 12(A,NN) AUTOIGNITION TEMPERATURE | |
| 1.4 8(DD) 1.5 12(A,NN) AUTOIGNITION TEMPERATURE | UPPER |
| 1.5 12(A,NN) AUTOIGNITION TEMPERATURE | |
| AUTOIGNITION TEMPERATURE | 8.7 12(A,NN) |
| | |
| | |
| DEC C CERTIFEST RET | DEG C REF |
| | one ner |
| | |
| | |
| AX FLAME VEL(CM/SEC) FLAME TEMP(DEG K | |
| CTOICH DEE |) VOL PERCENT FUEL |
| STOICH REF STOICH REF | |

CYCLOPENTENE

| SYNONYMS. FORMULA= C5H8 | C/H= 7.448 | 8 MW= 68.120 | VD= 2. | 3489 | |
|---|-------------------------------|----------------|----------------------|---------|-------------|
| HEAT OF COMBUSTION OF LIQUID | 1 K | CAL/MOLE | CAL/GRAM | REF | |
| OF LIQUID | | | | | |
| HEAT OF VAPORIZATI | | | 98.50 | 11 | |
| | | 25 C | | | REF |
| DENSITY (GRAM/ML) | .77199 11 | .76653 | 11 | .76104 | 19 |
| REFRACTIVE INDEX | | | 11 | | |
| SURFACE TENSION | 22.65 19 | | | 21.32 | |
| VISCOSITY (CS) | | | | .410 | 19 |
| VAPOR PRESSURE(MM | | URE (DEG C) DA | TA | | |
| P 1 10 | | | 400 | | |
| T -71.4 -44.0 | -27.4 | -5.5 | | 44.2 | 20 |
| VAPOR PRESSURE EQ | | | | | |
| | | C | D | MAX ERR | AT P |
| EQUATION 1 6.926 | 4 -1124.37 | 233.73 | | .06 | 10. |
| EQUATION 2 65.92 | 2 -5455.1 | -7.33 1 | 3.7646 | .06 | 30. |
| FLASH POINT(DEG C) | | | | | |
| - | -29. 1 LOWER PER REF 5 8(DD) | | UPPER PER REF | | • • • • • • |
| AUTOIGNITION TEMPE DEG C DELAY(| RATURE | DEG | C REF | | |
| MAX FLAME VEL(CM/S 40.4 (72) MIN IGN ENERGY(MIL QUENCHING DISTANCE | STO | TEMP(DEG K) | | 8 (72) | EL |

2-METHYL-1-BUTENE

| SYNONYMS. FORMULA= C5H1O C/H= | 5.958 MW= 70.13 | 5 VD= 2. | 4185 | |
|--|-------------------------|------------------|-----------------------------|--------|
| HEAT OF COMBUSTION | KCAL/MOLE | CAL/GRAM | REF | |
| OF LIQUID (NET |) 744.39) 796.99 | | | |
| HEAT OF VAPORIZATION(25 C | | 88.13 | 11 | |
| 20 C | REF 25 C | REF | | |
| DENSITY (GRAM/ML) .6504 REFRACTIVE INDEX 1.3778 | | | | |
| SURFACE TENSION 16.50 VISCOSITY (CS) | | | | |
| VAPOR PRESSURE(MM HG)-TEM | PERATURE(DEG C) D | | | |
| P 1 10 30 | | | | |
| T -89.1 -64.3 | | | 2U•2 | 21 |
| VAPOR PRESSURE EQUATION | | | | |
| A (EQUATION 1 6.4941 -890 | B (| D | MAX ERR -1.07 | |
| EQUATION 2 87.640 -56 | 76.8 -10.89 | 25.0273 | 97 | 10. |
| FLASH POINT(DEG C) (CC) -48. | | OC) REF | | |
| FLAMMABLE LIMITS LOWER VOL PER RI 1.4 B | F VOL | UPPER PER REF | | |
| AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) RI | E f DE | G C REF | | |
| MAX FLAME VEL(CM/SEC) FL 39.0 (69) MIN IGN ENERGY(MILLIJOULE) DUENCHING DISTANCE(CM)= | 2298 (55) STOICH REF | | ERCENT FL 12 (69) REF | JEL |

3-METHYL-1-BUTENE

| AX FLAME V 41.5 | (69) | | 2 | 305 STOI | | | | | | | | EL. |
|---|----------------------------------|---------------------------------|---------------------|-----------------|------------|-----------------------|--------------|---------------------|------------|------|-------------|------|
| UTOIGNITIO DEG C 374. | DELAY | | | : | | C | EG (| , RE | F | | | |
| LAMMABLE L | VOL | LOWE PER | REF | : | | vo | | PPER ER 1 | REF | | | |
| FLASH POINT | 68.34 | 10 | -5059 C) | 9.7 | | 7.85 | 15 | 8063 | | | .43 | 30. |
| VAPOR PRES | SURE EG A 6.815 |) TAUC | ON CO B LOO9. | DEFF1 .03 | CIEN 23 | TS C 6.35 | | D | | MAX_ | ERR • 37 | AT P |
| APOR PRESS 1 -88.3 | URE(MM 10 | HG)-1 | TEMPE 30 7.3 | 4 | 0 | 100 -26.8 | 3 | 400 | | 20.1 | | |
| DENSITY (GF REFRACTIVE SURFACE TEN VISCOSITY (| RAM/ML) INDEX ISION CS) | 20 (.627) 1.364 14.46 | 2 43 0 | REF 11 11 | | 25 (•621) 1•36 | ; 9 11 | REF 11(D 11(D |)) | | | |
| HEAT OF VAR | ORIZAT | ION (2 | 5 C) | | 5. | 23 70 | | 81. | 27 | 1 | | |
| | | | | | 770. | 0.0 | | 1064 | 5 • | I | 1 | |

2-METHYL-2-BUTENE

| ION (NET) (GROSS) ATION(25 C) | 742. 795. | 61 | 10588. | | |
|--|--|---|--|---|---|
| (GROSS) ATION(25 C) | 795. | | | | |
| ATION(25 C) | | 71 | 11338. | | |
| | | 47 | 92.22 | 11 | |
| 20 C | REF | 25 C | REF | | |
| L) .6623 | | | | | |
| x 1.3874 | 11 | 1.3842 | 11 | | |
| 17.61 | (8)(60) | 17.14 | 11 | | |
| MM HG)-TEMP | ERATURE (DI | EG C) DA1 | [A | | |
| | | | | | |
| .9 | -26.7 | -9.9 | 21.6 | 38.5 | 21 |
| | | TS | | | |
| A B | | C | D | MAX ERR | AT P |
| 1239 -1197 | .08 24 | 3.43 5.03 12 | 2144 | 1.17 | 400. |
| | | J.OJ 13 | | • 1 1 | -00- |
| (C) (CC) | REF | (00 | | | |
| OL PER RE | F | | | · | |
| MPERATURE AY(SEC) RE | | DEG | C REF | | |
| M/SEC) FL | | | | RCENT FU | JEL |
| | 17.61 MM HG)-TEMP 0 30 .9 EQUATION C A 8 1239 -1197 .962 -496 C) (CC) -45.5 S LOWER OL PER RE 1.4 8(MPERATURE AY(SEC) RE | 17.61 (8)(60) MM HG)-TEMPERATURE (D) 0 30 40 .9 -26.7 EQUATION COEFFICIEN A 8 1239 -1197.08 24 .962 -4968.2 - C) (CC) REF -45.5 10(DD) S LOWER OL PER REF 1.4 8(DD) MPERATURE AY(SEC) REF | 17.61 (8)(60) 17.14 MM HG)-TEMPERATURE (DEG C) DAT 0 | MM HG)-TEMPERATURE (DEG C) DATA O 30 40 100 400 .9 -26.7 -9.9 21.6 EQUATION COEFFICIENTS A B C D 1239 -1197.08 243.43 .962 -4968.2 -5.83 13.3146 C) (CC) REF (OC) REF -45.5 10(DD) S LOWER OL PER REF 1.4 8(DD) MPERATURE AY(SEC) REF DEG C REF | 17.61 (8)(60) 17.14 11 MM HG)-TEMPERATURE (DEG C) DATA 0 30 40 100 400 760 .9 -26.7 -9.9 21.6 38.5 EQUATION COEFFICIENTS A B C D MAX ERR 1239 -1197.08 243.43 1.17 .962 -4968.2 -5.83 13.3146 .77 C) (CC) REF (OC) REF -45.5 10(DD) S LOWER UPPER OL PER REF VOL PER REF 1.4 8(DD) MPERATURE AY(SEC) REF DEG C REF |

J-HEXENE

| HEAT OF CO | OMBUSTIO | | | K(A) /M | | CAL/G | RAM REF | |
|---------------------|-------------------------------------|----------------------------------|--------------------------------|-------------|-----------------|---|-------------------------|--------|
| OF LIQUID | 311003110 | (N I | ET) | 893. | 80 | 1062 | 0. 11 | |
| | | (GRO | 55) | 956. | 92 | 1137 | 0. 11 | |
| HEAT OF VA | | 101125 | C) | 7. | 34 | 87. | 21 11 | |
| | | | | | | | 37.78 C | REF |
| DENSITY (| | | | | | | | |
| REFRACTIVE | E INDEX | 1.3871 | 88 11 | | 1.3850 | 2 11 | | |
| SURFACE TE | | | | | | | | |
| VISCOSITY | (CS) | • 386 | (8) |) (60) | | | . 34 | 11 |
| VAPOR PRES | SSURE(MM | HG)-T | EMPERA | TUREID | EG C) D | ATA | | |
| | | | | | | | 760 | |
| | -28.1 | | | -5.0 | 13.0 | 46.8 | 66.0 | 21 |
| VAPOR PRE | ESSURE E | OLTAUS | N COEF | FICIEN | TS | | | |
| | | | В | | C | D | MAX ERR | |
| EQUATION I | 7.00 | 52 -12 | 237.56 | 23 | 4.16 | , ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | 40. |
| EQUATION 2 | | | 9401.8 | | 5.82 | 6.8022 | .70 | 40. |
| | | -20 | 5. 1 | 0(DD) | | | | |
| FLAMMABLE | | L OWEF | } | | | UPPER | | |
| FLAMMABLE | VOL | LOWER | l REF | | VOL | PER | REF | |
| FLAMMABLE | VOL 1.2 AT | LOWER PER 50 C | REF 14(U) | | VOL | PER 50 C 1 | REF 4(U) | |
| FLAMMABLE | VOL 1.2 AT | LOWER | REF 14(U) 13(V) | | VOL | PER 50 C 1 | REF 4(U) | |
| AUTOIGNITI | VOL 1.2 AT 1. 1. | LOWER PER 50 C 2 | REF 14(U) 13(V) 8(DD) | | VOL 9.0 AT 9 | PER 50 C 1 .0 1 | REF 4(U) 3(V) | |
| AUTOIGNITI DEG C | VOL 1.2 AT 1. 1. 1. ION TEMPE DELAY | LOWER PER 50 C .2 .2 | REF 14(U) 13(V) 8(DD) | | VOL 9.0 AT 9 | PER 50 C 1 .0 1 | REF 4(U) 3(V) | |
| AUTOIGNITI DEG C | VOL 1.2 AT 1. 1. | LOWER PER 50 C .2 .2 | REF 14(U) 13(V) 8(DD) | | VOL 9.0 AT 9 | PER 50 C 1 .0 1 | REF 4(U) 3(V) | R) |

| HEAT OF COMBUSTION | | | AL /MO | | CAL/CDAM | DEC | |
|----------------------------------|--------------------------|---------------------|--------|--------|---------------|---------|------|
| OF LIQUID | (NET) | , RC | 892.0 | 2 | 10599. | 11 | |
| or Civoto | (GROSS) | | 955.1 | 4 | 11349. | ii | |
| HEAT OF VAPORIZATI | ION (25 C) | | 7.5 | 2 | | 11 | |
| | 20 C | REF | | 25 C | REF | 30 C | REF |
| DENSITY (GRAM/ML) | .68720 | 11 | | .68252 | 11 | .6777 | 20 |
| REFRACTIVE INDEX SURFACE TENSION | | | | 1.3947 | 3 11 | 18.34 | |
| VISCOSITY (CS) | .457 | (8)(| 61) | | | 10.34 | 20 |
| VAPOR PRESSURE(MM | | | | | | | |
| P 1 10 | | | | | | | |
| r -54.2 -25.1 | | | | | | 68.8 | |
| VAPOR PRESSURE EQ | | | | | | MAY 500 | 47.0 |
| EQUATION 1 6.899 | 8 1194 – 1194 | 14 | 225 | 0.2 | D | 27 | |
| EQUATION 2 76.88 | 76 -1104 34 -636 | 1.5 | - A | . 0 Z | 21.6623 | | 30. |
| | | | | | | | |
| FLASH POINT(DEG C) | | | DD,SS | | | | |
| FLAMMABLE LIMITS VOL | -20.5 | 10(| DD, SS | | | | |
| | -20.5 LOWER PER RE 2 8(| 10(F DD) | DD, SS | | UPPER PER REF | | |

TRANS-2-HEXENE

| SYNONYMS. FORMULA= C6H | | H= 5 | .958 | MW= 84 | .163 | VD= | 2.4022 | |
|--------------------------------|----------------------|-------------|-------------|---------|-------|-----------|--------------|------|
| HEAT OF COMBI | | | KCA | AL/MOLE | | CAL/GR | AM REF | |
| OF LIQUID | | (NET) | - 8 | 391.00 | | 10587 | . 11 | |
| HEAT OF VAPOR | RIZATION | 25 C) | | 7.54 | | 89.5 | • 11 9 11 | |
| | | | | | | | 30 C | |
| DENSITY (GRA | 1/ML) .67 | 795 | 11 | .67 | 327 | 11 | .6692 | 20 |
| REFRACTIVE IN | | | | | | | | |
| SURFACE TENSIVISCOSITY (C | 5) | 44 | 20 | | | | 17.43 | 20 |
| VAPOR PRESSUR | E(MM HG) | | | | | | *** | |
| P 1 | 10 | 3U - 9 3 | 40 |) 10 | U | 400 | 760 47.0 | KEF |
| T -54.9 - | . 62.4 | -0.5 | | 12 | •0 | | 01.4 | 2U |
| VAPOR PRESSU | IRE EQUAT | ION C | OEFFIC | LIENTS | | | | |
| EQUATION 1 | A | В | | C | | D | MAX ERR | AT P |
| EQUATION 1 | 6.8824 | -1174 | .07 | 225.49 | | | 10 | 30. |
| EQUATION 2 | 76.632 | -633. | 1.8 | -8.84 | 20 | •7225 | •03 | 30. |
| FLASH POINT(| | | | D,55) | (00 | , KE | • | |
| FLAMMABLE LIM | VOL PER | | F | | VOL P | | EF | |
| AUTOIGNITION DEG C D | TEMPERAT ELAY(SEC | | - - | | DEG (| C REI | | |
| MAX FLAME VEI | | | STOIC | MP(DEG | | VOL | | JEL |
| MIN IGN ENERG OUENCHING DIS | | | | | | | | |

CYCLOHEXENE

| | | (NET) | 844 | MGLE .02 .62 | 10275. | 11 | |
|-------------------------------|-----------|---------|--------------|--------------------|--------|-------|------------|
| HEAT OF VAPO | | | | • 02 | 10717. | ** | |
| | | | | 25 C | | | |
| DENSITY (GRA | | | | | | | |
| REFRACTIVE I | | | | 1.44377 | 11 | | |
| SURFACE TENS VISCOSITY (C | | . 54 | 19 | | | 25.22 | 19 |
| APOR PRESSU | JRE(MM HG |)-TEMPE | RATURE | DEG C) DAT | A | | |
| 1 | 10 | 30 | 40 | 100 | 400 | | |
| -45.5 | -15.1 | 3.3 | | 27.6 | | 83.0 | |
| VAPOR PRESS | | | EFFICIE | NTS | | | |
| EQUATION 1 | A 8020 | -1222 | 25 25 | C | U | | |
| EQUATION 2 | | | | | | | 10. 30. |
| FLASH POINT (| | -29.5 | | (00 |) REF | | |
| LAMMABLE LI | VOL PE | | | VOL P | | | |
| AUTOIGNITION DEG C 325. | | C) REF |)(24)(B) | DEG (| C REF | | |
| | | | | | | | |

2-METHYL-1-PENTENE

| SYNONYMS. 1-M FORMULA= C6H1 | | 5.958 M | | VD= 2. | 9022 | |
|--|--|--------------------------|------------------------|---------------------------|----------------|--------------------|
| HEAT OF COMBU OF LIQUID HEAT OF VAPOR | ISTION (N (GRO | KCAL ET) 89 SS) 95 | 0.25 3.37 7.29 | 10578. 11328. 86.62 | 11 11 11 | |
| DENSITY (GRAM REFRACTIVE IN SURFACE TENSI VISCOSITY (CS | 1/ML) .6798 IDEX 1.392 ION 18.78 | 7 11 00 11 | 25 C •67505 | 11 | 30 C .6720 | 20 20 |
| VAPOR PRESSUR P 1 T -59.8 - | 10 3 | 0 40 | 100 | 400 | | |
| VAPOR PRESSUEQUATION 1 EQUATION 2 | A 6.8891 -1 73.413 - | 8 155.31 6067.7 | C 227.53 -8.39 1 | 7.7370 | .10 | AT P 30. 30. |
| FLASH POINT(D | -2 | 8. 1 6. 10(DD | | C) KEF | | |
| FLAMMABLE LIM | ITS LOWE VOL PER 1.2 | REF | | JPPER PER REF | | |
| AUTOIGNITION DEG C D 306. | TEMPERATUR(ELAY(SEC) 6. | - | DEG | C REF | | |
| MAX FLAME VEL 39.6 (6 MIN IGN ENERG DUENCHING DIS | 9) Y(MILLIJOU | 2237 (STOICH | | | 10 (69) | JEL |

3-METHYL-1-PENTENE

| SYNONYMS. FORMULA= C6H12 | C/H= 5.958 | | VD= 2.9 | |
|---|-----------------------------|-------------------|--------------------|-----------------------------------|
| HEAT OF COMBUSTION OF LIQUID | (NET) (GROSS) | AL/MOLE 893.25 | CAL/GRAM 10613. | REF 11 |
| HEAT OF VAPORIZATI | ON(25 C) | 6.83 | 81.15 | 11 |
| | 20 C REF | 25 C | REF | 30 C REF |
| REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 1.38422 11 | 1.38133 | 11 | |
| VAPOR PRESSURE(MM | | PE(DEC C) DAT | | |
| P 1 10 T -64.3 -36.4 | 30 -19.4 | 0 100 3.1 | 400 | 54.1 20 |
| VAPOR PRESSURE EQ | UATION COEFFI | CIENTS | | |
| EQUATION 1 6.876 EQUATION 2 73.22 | 6 -1130.10 | 228.68 | | MAX ERR AT P 04 10. .13 30. |
| FLASH POINTIDES C) | | |) REF | |
| | | | | |
| | LOWER PER REF 2 8(DD) | VOL P | | |
| | | | | |
| DEG C DELAY(| | DEG | C REF | |
| | | | | |

MAX FLAME VEL(CM/SEC) FLAME FEMP(DEG K) VOL PERCENT FUEL

STOICH REF ABS MIN REF

MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM) =

4-METHYL-1-PENTENE

| SYNONYMS. Formula= C6 | H1 2 | C/H= | 5.958 | MW= | 84.16 | 53 VD= | 2.4022 | |
|------------------------------|-------------------|--------|---------------|--------|--------|------------------|--------------------------|--------|
| HEAT OF COM | BUSTION | i | | | | | | |
| OF LIQUID | | (NE | | | | | 5. 11 | |
| HEAT OF VAR | ORIZATI | | | 6.8 | 6 | 81.5 | 5. 11 51 11 | |
| | | 20 C | REF | | | | 30 C | |
| DENSITY (GR | RAM/ML) | .66370 | 11 | | .65894 | 11 | •6546 | 20 |
| REFRACTIVE | | | | | 1.3797 | 74 11 | | |
| SURFACE TEN VISCOSITY (| | 16.90 | 20 | | | | 15.90 | 20 |
| VAPOR PRESS | | | | | | | 7.0 | |
| P 1 | 10 | 30 | 4 | 40 | 100 | 400 | 760 53.0 | |
| | -36.6 | | | | | | 53.9 | |
| VAPOR PRES | SURE EC | NOITAU | COEFF | ICIENT | S | | | |
| EQUATION 1 | A | | В | C | | D | MAX ERF | R AT P |
| EQUATION 1 | 6.877 | 5 -11 | 29.62 | 228 | •76 | 17 6004 | • 03 | 30. |
| EQUATION 2 | | | | | | | . 1 4 | 30. |
| FLAMMABLE L | VOL | PER | | | | UPPER . PER F | lEF | |
| | N TEMPE DELAY(| SEC) | REF 49 | | DE | G C RE | F | |
| MAX FLAME V | EL (CM/S | | | | | | . PERCENT F 2.62 (69) | |

| SYNONYMS. FORMULA= C6H12 | C/H= 5.958 | MW= 84.163 | VD= 2.9 | 022 | |
|--|--------------------------|-------------------------|----------------|---------------|-----------------|
| HEAT OF COMBUSTION OF LIQUID | (NET) (GROSS) | 888.59 | 10558. | 11 | |
| HEAT OF VAPORIZATIO | N(25 C) | 7.55 | 89.71 | 11 | |
| | .40030 11 | 25 C .68187 | REF 11 | 30 C .6767 | REF 20 20 |
| VAPOR PRESSURE(MM HO P 1 10 T -55.3 -26.4 | 30 4 | 0 100 | 400 | 760 67.3 | |
| VAPOR PRESSURE EQUATION 1 6.8947 EQUATION 2 74.966 | B -1178.09 -6254.7 | C 226.21 -8.59 19 | -4109 | .13 | 30. |
| FLASH POINT (DEG C) | | (00 | | | |
| | LOWER ER REF 8(DD) | | PPER ER REF | | |
| AUTOIGNITION TEMPERADEG C DELAYISI | | DEG | C REF | | |
| | | | | | |
| MAX FLAME VEL(CM/SEC | | | | | EL |
| MIN IGN ENERGY(MILLI QUENCHING DISTANCE(| [JOULE) = | CH REF | ABS MIN | REF | |

4-METHYL-CIS-2-PENTENE

| | | | | | | | | 2.9022 | |
|---------------------------------------|--------|------------------|-------|--------|-----------|----------------|----------|--------|----------|
| HEAT OF COME | USTION | | | KCAI | L/MOLE | CA | L/GR | AM REF | |
| of Liquid | | (N | ET) | 84 | 90.80 | 1 | 0584 | . 11 | |
| | | (GRO | SSI | 9 | 53.92 | 1 | 1334 | . 11 | |
| HEAT OF VAPO | KIZALI | UN (25 | CI | | 7.04 | | 03.0 |) 11 | |
| | | 20 C | f | REF | 25 | C R | EF | 30 C | REI |
| DENSITY (GRA | M/ML) | .6691 | 8 | 11 | .664 | 41 1 | 1 | •659 | 3 20 |
| REFRACTIVE I | NDEX | 1.387 | 93 | 11 | 1.38 | 3498 1 | 1 | 1.38 | 20 20 |
| SURFACE TENS /ISCOSITY (C | LON | 17.41 | • | 20 | | | | 16.3 | 8 20 |
| APOR PRESSU | | | | RATURE | E (DEG C) | DATA | | | |
| 1 | 10 | ·, 3 | 0 | 40 | 100 |) 4 | 00 | 760 | REF |
| -62.8 | -34.7 | -17 | • Ó | | 5. | . 0 | | 56.3 | 20 |
| VAPOR PRESS QUATION 1 QUATION 2 | | | | | | | | | |
| | A | | В | | С | D | | MAX E | RR AT P |
| QUATION 1 | 6.883 | 1 -1 | 139.0 |)8 | 228.31 | | | • ! | 02 30. |
| QUATION 2 | 73.10 | 9 - | 5970. | . 8 | -8.36 | 17.4 | 581 | • | 11 30. |
| LAMMABLE LI | VOL | LOWE PER 2 | REF | | v | UPPI OL PER | ER RE | F | |
| UTOIGNITION DEG C | TEMPE | RATUR | E | | | DeG C | REF | · | |
| | | | | | | | | | FUEL |

4-METHYL-TRANS-2-PENTENE

| HEAT OF COMI OF LIQUID HEAT OF VAPO | ORIZATI | (GROSS) (ON(25 C | 9! | 7.16 | 11321. 85.07 | 11 | |
|---|---------------------------------|-------------------------------------|-----------------------|--|-----------------|----------------------------------|-----------------------|
| DENSITY (GRAREFRACTIVE) SURFACE TENS VISCOSITY (| AM/ML) INDEX STON | 20 C .66862 1.38878 17.37 | REF 11 11 20 | 25 C •66380 1•3858 | 33 11 | 30 C .6590 1.2831 16.35 | REF 20 20 20 |
| VAPOR PRESSI P 1 F -61.3 | REEMM to -13.0 | HG)-TEMP 30 -15.8 | ERATURE 40 | 100 (DEG C) (100 (100 (100 (100 (100 (100 (100 (10 | 900 400 | 760 58.6 | REF 20 |
| VAPOR PRESS LUATION 1 ECUATION 2 | 50 RE EQ A 6.085 73.49 | OUATION C B 5 -1146 5 -602 | 0EFFICE •99 9•3 | C 227.86 -8.41 | D 17.8083 | MAX ERR 03 | AT P 10. 30. |
| -LASH POINT | | -29. | 8 (DD) | | | | |
| FLAMM \BLE LI | MITS VOL | LOWER | F | | UPPER PER RE | | |
| AUTOIGNITION DEG C | | RATURE SEC) RE | | DE | G C REF | | |
| MAX FLAME VE | L (CM/S | EC) FL | AME TEM | | VOL | PERCENT FL | JEL |
| IN IGN ENER DUENCHING DI | | | | REF | ABS MI | N REF | |

2,3-DIMETHYL-1-BUTENE

| HEAT OF COME | LL C T I (M | | | | AL /MOLG | | CALICE | AM DE | | |
|----------------------------------|---------------------------------|-------------------------------------|--------------------------|------------|-------------------|------------|----------------|-------|-----|------|
| HEAT OF COMB OF LIQUID | 0211011 | (N I | FT) | N.C | AL/MULC 889.35 | | 10567 | 7. 1 | 1 | |
| | | | | | | | | . i | | |
| HEAT OF VAPO | RIZATI | ON125 | C) | | 6.97 | | 82.8 | 32 1 | | |
| | | 20 C | | REF | 2 | 5 C | REF | 30 | C | REF |
| DENSITY (GRA | M/ML) | .6781 | 0 | 11 | - 6 | 7325 | 11 | .66 | 82 | 20 |
| REFRACTIVE I | | | | | | 38729 | | | | |
| SURFACE TENS VISCOSITY (C | | | | 20 | | | | 17. | 28 | 20 |
| VAPOR PRESSU | RE(MM | HG)-TI | EMPE | RATU | RE (DEG | C) D/ | Ata | | | |
| P 1 | 10 | 30 | 0 | 4 | 0 1 | .00 | 400 | | | |
| T -63.3 | | | | | | | | | | |
| VAPOR PRESS | | | | | | | | | | |
| SOULATION 1 | A 001 | | В | 5 0 | 220 (| ^ | D | MAX | ERR | AT P |
| EQUATION 1 EQUATION 2 | 9 9 8 8 1 | 6 -1. | 136. | 50 | 228.4 | · 0 | 7 2075 | - | •01 | 100. |
| EQUALIUN Z | 12.90 | 4 T: |) 7) 4 | • 1 | -0.5 | · | L / • Z O / > | | -12 | 5U • |
| LEASH PULNIT | DEG () | (C) | 2) | REF | | ((| DC) RE | F | | |
| TEASH PUTHIT | DEG () | | | | DD) | ((| OC) RE | F | | |
| FLAMMABLE LI | | -29 | 9 . | 10(| | | OC) RE | F | | |
| | MITS VOL | -29 | REF | 10(| DD) | | | | | |
| FLAMMABLE LI | MITS VOL: | -2° LOWEF PER 2 | REF 8 (D) | 10() | DD) | VOL | UPPER PER R | | | |
| FLAMMABLE LI | MITS VOL: | -2° LOWEF PER 2 | REF 8 (D) | 10() | DD) | VOL | UPPER | | | |
| FLAMMABLE LI AUTOIGNITION DEG C | MITS VOL 1. TEMPEI DELAY(6. | LOWER PER 2 RATURE SEC) | REF 8(D) REF 49 | 10() | DD) | VOL DEG | UPPER PER R | EF | | JEL |

3.3-DIMETHYL-1-BUTENE

| SYNONYMS. FORMULA= C6H12 | C/H= 5.95 | 58 MW= 84.1 | 63 VD= 2.9 | 9022 | |
|--|---|-------------------------------|----------------------|----------------------------------|-----------------------|
| HEAT OF COMBUSTION | ON (NET) (GROSS) | KCAL/MOLE 890.49 953.61 | CAL/GRAM 10581. | REF 11 | |
| HEAT OF VAPORIZA | 110N(25 C) | | 75.57 | 11 | |
| DENSITY (GRAM/MI. REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 20 C RE 1 .65310 11 1.37620 11 15.72 20 | F 25 C .6479 . 1.373 | KEF 5 11 13 11 | 30 C .6429 1.3699 14.71 | REF 20 20 20 |
| VAPOR PRESSURE (MI P 1 10 I -13.4 -46.4 | 30 4 -30.0 | 40 100 -8.3 | 400 | 41.2 | 20 |
| VAPOR PRESSURE I A EQUATION 1 6.84 EQUATION 2 71. | FOLIATION COFF | FICIENTS | | | |
| FLASH POINT (DEG (| | | | •12 | 30 . |
| | | | | | |
| FLAMMABLE LIMITS VOL | | VO | UPPER L PER REF | | |
| AUTOIGNITION TEMP DEG C DELAY | | D) | EG C REF | | |
| MAX FLAME VELICMA | | | | | EL |
| MIN IGN ENERGY(MI | LLIJOULE)= | OICH REF | ABS MIN | REF | |

2-ETHYL-1-BUTENE

| SYNONYMS. FORMULA= C6H12 | C/H= 5.958 | 3 MW= 84.163 | VD= 2. | 9022 | |
|---|-------------------------------------|---------------------------|--------------------|-------------|------------|
| HEAT OF COMBUSTION OF LIQUID | (NET) | CAL/MOLE 890.77 | CAL/GRAM 10584- | REF 11 | |
| HEAT OF VAPORIZAT | ION(25 C) | 7.41 | 88.04 | 11 | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 20 C REF .68958 11 1.39671 11 | 25 C .68481 1.39380 | REF | 30 C | 20 20 |
| VAPOR PRESSURE(MM P 1 10 T -57.1 -28.3 | 30 -10.8 | 40 100 12.2 | 400 | 760 64.7 | REF 20 |
| VAPOR PRESSURE EC | NUATION COEFF | | n | MAY FRR | AT P |
| EQUATION 1 6.895 EQUATION 2 74.11 | 54 -1170.01 | 226.78 | | -01 | 30. 30. |
| FLASH POINT (DEG C) | (CC) RE | | | | |
| FLAMMABLE LIMITS VOL | LOWER PER REF | | UPPER PER REF | | |
| AUTOIGNITION TEMPE DEG C DELAYO 324. 6. | RATURE SEC) REF 49 | DEG | C REF | | |

MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 39.3 (69) 2284 (55) 2.65 (69) STOICH REF ABS MIN REF

MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM)=

2+3-DIMETHYL-2-BUTENE

| FCRMULA= C6H1 | 2 C/ | H= 5.958 | MW= 84.1 | 63 VD= 2 | 2.9022 | |
|--|---|----------------------------|--------------------------------|------------------|----------------------------------|---------------------|
| HEAT OF COMBU OF LIQUID HEAT OF VAPOR | (G | (NET) ROSS) | 887.41 950.53 | 10544. 11294. | 11 | |
| DENSITY (GRAM REFRACTIVE IN SURFACE FENSI VISCOSITY (CS | 20 //ML) .70 DEX 1.4 ON 21.5 | C REF 810 11 1235 11 | 25 0 •7034 1•409 | REF 7 11 | 30 C •6988 1•4065 20•75 | 20 20 |
| VAPOR PRESSUR P 1 T -51.3 - | 10 | 30 | 40 100 | DATA 400 | 760 | |
| VAPOR PRESSU EQUATION 1 EQUATION 2 | A 6.9029 · | B -1199.58 | C 225.04 | | -01 | AT P 100. 30. |
| FLASH POINT(D | | -19. 10 | (DD) | UPPER | | |
| | | REF 8(DD) | VO | L PER RE | :F | |
| AUTOIGNITION DEG C D 407. | | | D | EG C REF | | |
| MAX FLAME VEL 37.2 (6 | | 2284 | TEMP(DEG K) (62) (CH REF | | .36 (73) | JEL |

2-CYCLOPROPYLPROPENE

| SYNONYMS. FORMULA= C6H10 |
|--|
| KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) |
| VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF T |
| VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 EQUATION 2 |
| FLASH POINT(DEG C) (CC) REF (OC) REF |
| FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PER REF |
| AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF |
| MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 44.9 (72) STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM) = |

1-HEPTENE

| LAT OF COMB | USTION | | KCAL/MO | LE | CAL/GR | RAM REF | |
|---------------|---------------------------|-------------------------|----------|--------|--------------------|-------------|--------|
| OF LIQUID | | (NET) | 1039.5 | 3 | 10587 | . 11 | |
| " AT OF WADO | | | | | | 11 | |
| HEAT OF VAPO | K 1 Z A 1 I UN (| 27 U.I | o. ت | | 00.1 | | |
| | | | | | | 37.78 | |
| DENSITY (GRA | M/ML) .69 | 698 11 | | .69267 | 11 | | |
| REFRACTIVE I | | | | | | | |
| SURFACE TENS | 10N 20. | 30 (8 | (60) | 19.80 | 11 | | |
| VISCOSITY (C | s) .50 | 2 (8 | (60) | | | .44 | 11 |
| APOR PRESSU | | | | | | | |
| 1 | | | | | | 760 | REF |
| -37.0 | | | | | | | |
| | | | | | | | |
| VAPOR PRESS | | | | | 0 | MAY FO | |
| EQUATION 1 | A 0007 | - 1 267 ደገ | 210 | 10 | υ | MAX ERI | 5 AI P |
| QUATION 2 | 81-048 | -1257 • 52 -7048 - 5 | -0 | . 37 2 | 3.6061 | 0 | 2 10 • |
| | | | | | | | . ,,, |
| FLASH POINT() | | | | (0 | | | |
| | DEG C) MITS LOI VOL PER | (CC) R | EF | | C) RE | F | |
| LAMMABLE LI | MITS LOW VOL PER 1.0 | VRE | EF | VOL | C) RE UPPER PER R | F EF | |

| SYNONYMS. FORMULA= C7H14 | C/H= 5 | .958 MW= | 98.190 | VD= 3. | 3858 | |
|--|-------------------------|-----------------------------|---------------|------------------|--------------|--------------|
| HEAT OF COMBUSTION OF LIQUID HEAT OF VAPORIZAT | (NET) (GROSS) | 1037. 1111. | 85 49 | 10570. 11320. | 11 11 | |
| | 20 C .7071 1.4069 | REF 11 11 | 25 C .7028 | REF 11 | 30 C .700 | 20 20 |
| VAPOR PRESSURE (MM P 1 10 T -33.9 -2.5 | 30 | 40 | 100 | 400 | | 20 |
| VAPOR PRESSURE EGA EQUATION 1 6.936 EQUATION 2 78.18 | 8 66 -1292 | .98 220 | 30 | D | MAX ERR | AT P 100. |
| FLASH POINT(DEG C | -2. | REF 10(J,UU) 10(J,VV) |) | C) REF | | |
| | LOWER PER RE 0 8(| F | | JPPER PER REF | | |
| AUTOIGNITION TEMPI DEG C DELAY | | F | DEG | C REF | | |
| MAX FLAME VEL(CM/ | SEC) FL | | | | | JEL |
| MIN IGN ENERGY(MII QUENCHING DISTANCE | | | .cr | ABS MIN | REF | |

| SYNONYMS. FORMULA = C7H14 | C/H= 5.958 MW | = 98.190 VD= 3 | .3858 | |
|---|---|----------------------|---------|---------------|
| HEAT OF COMBUSTIO | (NET) 1036 | | 11 | |
| HEAT OF VAPORIZAT | ION(25 C) 8 | | | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 20 C REF .7012 11 1.4045 11 20.00 20 | 25 C REF .6969 11 | 30 C RI | 0 |
| VAPOR PRESSUREIMM | HG)-TEMPERATURE (| DEG C) DATA | 740 050 | • |
| P 1 10 T -34.3 -3.0 | 16.1 | 41.1 | 97.9 20 | , ס |
| VAPOR PRESSURE EGA A EQUATION 1 6.93 EQUATION 2 78.5 | 8 27 -1289.68 2 | C D | 03 | |
| FLASH POINT(DEG C |) (CC) REF -2. 10(J,U | | | |
| | LOWER PER REF .O 8(DD) | UPPER VOL PER REI | : | |
| AUTOIGNITION TEMPI DEG C DELAY | | DEG C REF | | · · · · · · · |
| MAX FLAME VEL(CM/ | | | | |
| MIN IGN ENERGYIMIL QUENCHING DISTANCE | | REF ABS MIN | N REF | |

CIS-3-HEPTENE

| SYNONYMS. FORMULA= C7H14 | C/H= 5 | .958 N | 1W= 98. | 190 VD= | 3.3858 | |
|---|-----------|-------------|-----------------|-------------------|----------------|--------|
| HEAT OF COMBUSTION | V (1157) | KCAL | /MOLE | CAL/GI | RAM REF | |
| OF LIQUID | 1 (POSS) | 10: | 37.495 13.50 | 10571 | 1. 11 1. 11 | |
| HEAT OF VAPORIZAT | | | | | | |
| | 20 C | REF | 25 (| REF | 30 C | REF |
| DENSITY (GRAM/ML) | . 7028 | 11 | .6985 | 5 1.1 | .6944 | 20 |
| REFRACTIVE INDEX SURFACE TENSION | | | 1.403 | 33 11 | 18.26 | |
| VISCOSITY (CS) | 20.21 | 20 | | | 10.20 | 20 |
| VAPOR PRESSURE (MM | | | | | | |
| P 1 10 | 30 | 40 | 100 | 400 | | |
| T -35.8 -4.6 | 14.3 | | 39.2 | 2 | 95.7 | 20 |
| VAPOR PRESSURE EG | O NOITAUS | OEFFICE | ENTS | | | |
| A EQUATION 1 6.932 EQUATION 2 77.59 | В | 1.= | C | D | MAX ERR | AT P |
| EQUATION 1 6.932 | 23 -1282 | .62 | 220.83 | 22 0076 | 02 .12 | 100. |
| EQUALIUN Z 11.5 | | U.D | -0.00 | 22.0010 | .12 | |
| FLASH POINT(DEG C | | REF 10(J | | (OC) RE | E F | |
| | | F | | UPPER DL PER F | REF | ****** |
| AUTOIGNITION TEMPE DEG C DELAY | | - - | | DEG C RE | :F | |
| MAX FLAME VEL(CM/S | SEC) FL | | | | | UEL |
| MIN IGN ENERGY(MIL QUENCHING DISTANCE | | | I REF | ABS N | IIN REF | |

TRANS-3-HEPTENE

| SYNONYMS. FORMULA= C7H14 | C/H= 5 | .958 MW= | 98.190 | VD= 3.1 | 3858 | |
|--|-----------------------------|-----------------|---------------------|------------------|---------------|------------|
| HEAT OF COMBUSTIC | (NET) (GROSS) | 1036. | 95 | 10561. | 11 | |
| HEAT OF VAPORIZAT | | 8. | 50 | 86.57 | 11 | |
| DENSITY (GRAM/ML. REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | .6981 1.4044 19.65 | REF 20 11 | 25 C •6938 | 11 | 30 C .6895 | 20 20 |
| VAPOR PRESSURE(MP 1 10 T -35.9 -4.7 | 30 | 40 | 100 | 400 | 760 95.7 | |
| VAPOR PRESSURE E A EQUATION 1 6.90 EQUATION 2 80.7 | B 065 -1269 793 -7059 | .72 21 9.1 - | C 9.72 9.33 2 | 5.0650 | 54 40 | 30. 30. |
| FLASH POINT(DEG (| (00) | | (0) | | | |
| | LOWER PER REF | F | | UPPER PER REF | | |
| AUTOIGNITION TEMP DEG C DELAY | | | DEG | C REF | | |
| MAX FLAME VEL(CM/ | SEC) FLA | | | | | VEL |
| MIN IGN ENERGY(MI QUENCHING DISTANC | | | REF | ABS MIN | REF | |

1-METHYLCYCLOHEXENE

| FORMULA= C7H12 | C/H= 6 | .951 MI | ı= 96 . 17 | 4 VD= 3 | .3163 | |
|---------------------------------------|----------|-----------|-------------------|---------|---------|------|
| | (NGT) | KCAL | MOLE | CAL/GRA | M REF | |
| HEAT OF COMBUSTION OF LIQUID | (RET) | 1048 | 3. 85 | 10249. | 11 | |
| EAT OF VAPORIZATI | | | | | | |
| | 20 C | REF | 25 C | REF | 30 C | REF |
| DENSITY (GRAM/ML) REFRACTIVE INDEX | .81148 | 11 | .80660 | 4 11 | .8014 | 19 |
| SURFACE TENSION | 26.01 | 19 | | | 24.89 | 19 |
| APOR PRESSURE (MM | HG)-TEMP | ERATURE (| DEG C) D | ATA | | |
| 1 10 | | | | | | |
| -27.6 4.9 | 27.0 | | | | | 17 |
| VAPOR PRESSURE EQ | UATION C | OEFFICIE | NTS | 0 | MAY COO | AT D |
| A EQUATION 1 6.879 | 6 -1314 | •02 2 | 18.60 | U | 13 | 30. |
| QUATION 2 78.30 | 0 -716 | 2.9 | -8.93 | 25.1288 | 01 | 30. |
| FLASH POINT(DEG C) | | | (| | | |
| FLAMMABLE LIMITS VOL | | | VOL | | F | |
| AUTOIGNITION TEMPE DEG C DELAY(| | F | DE(| C REF | | |
| | | | | | | |

4-METHYL-1-CYCLOHEXENE

| FORMULA= C7H12 | | | | | | |
|--|-----------|----------------|-----------|---------|-------------|------|
| HEAT OF COMBUSTI | | | IL/MOLE | CAL/GH | RAM REF | |
| | (GROS | | | | | |
| HEAT OF VAPORIZA | TION(25 | C) | | | | |
| | | | | | 30 C | |
| DENSITY (GRAM/ML | 1 .7991 | 11 | .7947 | 11 | .7902 | 19 |
| RE <mark>FRACTI</mark> VE INDEX SURFACE TENSION | 1.4414 | 11 | 1.438 | 9 11 | 23.53 | 19 |
| VISCOSITY (CS) | | 19 | | | 23.73 | 17 |
| VAPOR PRESSURE(M | M HG)-TE | MPERATUR | E(DEG C) | DATA | | |
| P 1 10 | 30 | 40 | 100 | 400 | 760 | REF |
| T -32.2 | 4 19.0 | 0 | 44.5 | | 102.7 | 19 |
| VAPOR PRESSURE | EQUATION | COEFFIC | IENTS | | | |
| A EQUATION 1 6.8 | 705 10 | 8 | C | D | MAX ERR | AT P |
| EQUATION 1 6.8 | 103 -12 | 83. 5 9 | 219.03 | 24 6823 | .19 | 30. |
| TOTAL TON 2 17. | | | 7401 | | | |
| FLASH POINT (DEG | c) (cc |) REF | | | | |
| | | | • | -1. (1 | .•(8)(9))(L |) |
| | | | | | | |
| | | | | | | |
| FLAMMABLE LIMITS | | | | UPPER | | |
| V0 | L PER | REF | VO | L PER R | REF | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| AUTOIGNITION TEM DEG C DELA | | | DI | EG C RE | F | |
| | | | | | • | |
| | | | | | | |
| | | | | | | |
| MAX FLAME VELICM | /SEC) F | LAME TE | MP(DEG K) | VOL | PERCENT FL | JEL |
| | | STOLE | H REF | ABS M | IN REF | |
| IN IGN ENERGY(M | ILLIJOULE | | II NGF | AD3 M | INTER | |
| DUENCHING DISTAN | CE(CM)= | | | | | |

4,4-DIMETHYL-1-PENTENE

| SYNONYMS. FORMULA= C7H14 | C/H= 5.958 | MW= 98.190 VD | = 3.3858 | |
|--|---|---|---|--------------|
| HEAT OF COMBUSTION OF LIQUID HEAT OF VAPORIZATI | (GROSS) 1 | 110.64 | 311. 11 | |
| | 20 C REF .68249 11 1.39172 11 17.93 20 | 25 C RE .67804 11 1.38895 11 | 30 C .6743 | 20 20 |
| VAPOR PRESSURE (MM P 1 10 T -55.9 -26.1 | 30 40 | 100 400 | 760 72.5 | 20 |
| VAPOR PRESSURE EQ A EQUATION 1 6.674 EQUATION 2 74.58 | UATION COEFFIC B 1 -1128.59 3 -6132.9 | CIENTS C D 225.03 -8.61 22.868 | MAX ERR | AT P 100. |
| FLASH POINT(DEG C) | (CC) REF | (00) | REF | |
| FLAMMABLE LIMITS VOL 1. | LOWER PER REF O 8(DD) | UPPER VOL PER | REF | |
| AUTOIGNITION TEMPE DEG C DELAY(| | DEG C | REF . | |
| MAX FLAME VEL (CM/S | | | OL PERCENT F | UEL |
| MIN IGN ENERGY(MIL QUENCHING DISTANCE | L1JOULE)= | | *************************************** | |

2.3-DIMETHYL-2-PENTENE

| FORMULA = C7 | 7H1 4 | C/H= 5 | 958 | MW= 98.19 | 0 VD= 3. | 3858 | |
|---|----------------------------------|--------------------------|-------------|-------------------------------|------------------|--|----------|
| HEAT OF COM OF LIQUID HEAT OF VAR | | (NET) | 10 | 35.10 08.74 | 10542. 11292. | 11 11 | |
| DENSITY (GR REFRACTIVE SURFACE TEN VISCOSITY (| RAM/ML) . INDEX : NSION :2 | .7277 1.4211 23.20 | 11 11 | 1.4185 | 11 | .7190 | 20 20 |
| VAPOR PRESS P 1 T -38.4 | 10 | 30 | 40 | 100 38.5 | 40C | 97.5 | 20 |
| VAPOR PRESEQUATION 1 EQUATION 2 FLASH POINT | A 6.7544 76.187 | 6 6 -1233 7 -671 | 3.63 1.9 | IENTS C 221.01 -8.72 | D 24.8373 | MAX ERR 01 .11 | |
| FLAMMABLE L | VOL P | LOWER PER RE | F | | UPPER PER REF | •••••••••••••••••••••••••••••••••••••• | |
| AUTOIGNITIO | _ | | | DE(| C REF | | |
| DEG C | | | | | | | |
| DEG C | | C) FL | | | | | JEL |

2,3,3-TRIMETHYL-1-BUTENE

| SYNONYMS. FORMULA = C7 | 11.4 | C/H≃ | 5.958 | MW= 98 | .190 VD= | | |
|---|----------------------------------|------------------------------------|---------------------|--------------------------------|----------------------------|------------------|------------------------------------|
| HEAT OF COME OF LIQUID | | (GROSS | 5) 1 | 109.94 | CAL / 105 113 | GRAM RE 54.] | l 1 |
| HEAT OF VAPO | TASI SC | ON125 C | () | 7.68 | 78 | .22 | l 1 |
| DENSITY (GRAREFRACTIVE SURFACE TENS | AM/ML) INDEX SION | 20 C .70466 1.40282 20.40 | REF 11 2 11 | 25 •70 1•4 | C REF 024 11 0007 11 | 30 •69 1•3 | C RE 960 20 3973 20 35 20 |
| VAPOR PRESSU P 1 T -52.0 | JRE(MM 10 -21.8 | HG)-TEM 30 -3.3 | PERATU 4 | 0 10 | 0 400 • 3 | 760 77.9 | REF 20 |
| VAPOR PRESSEQUATION 1 EQUATION 2 | A 6.695 75.20 | 6 -115 9 -62 | B 51.31 276.7 | CIENTS C 223.93 -8.67 | D 23.142 | | |
| | | | | | (00) | REF | |
| FLASH POINT | IDEG C) | (CC) | REF | | UPPER | | |
| FLASH POINT(| IMITS VOL 1. | LOWER PER R O 8 RATURE SEC) R | REF (DD) | | UPPER VOL PER | REF | |
| FLASH POINT (FLAMMABLE LI AUTOIGNITION DEG C | IDEG C) IMITS VOL 1. I TEMPE | LOWER PER R O B RATURE SEC) R | REF (DD) | | UPPER YOL PER DEG C | REF | |

2-CYCLOPROPYL-1-BUTENE

SYNONYMS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE (MM HG)-TEMPERATURE (DEG C) DATA
P 1 10 30 40 100 400 760 REF T VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT (DEG C) (CC) REF (OC) REF FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 42.5 (62) 2.37 (73) STOICH REF ABS MIN REF MIN IGN ENERGY (MILLIJOULE) = QUENCHING DISTANCE(CM) =

1-OCTENE

| LAMMABLE L | IMITS VOL | LOWER PER RI | EF | v | UPPER OL PER | REF | |
|-------------------------------|-----------------------|-----------------------|----------------------|------------------------|------------------|------------------------------|------|
| -LASH FUINI | (DEG C) | (667 | KLI | | 21. | | |
| EQUATION 2 FLASH POINT | 86.61 | 8 -78 | 87 . 2 | -10.06 | 28.899 | .13 | 30 • |
| VAPOR PRES | SURE EQ A 6.926 | UATION | COEFFIC B 9.95 | IENTS C 212.40 | D | MAX ERR | AT P |
| VAPOR PRESS P 1 T -17.5 | URE(MM 10 15.4 | HG)-TEM 30 35.3 | PERATUR 40 | E(DEG C) 100 61. | DATA 400 6 | 760 121.3 | 20 |
| SURFACE TEN | CS) | •656 | (8)(6 | 0) | | .557 | 11 |
| DENSITY (GR | INDEX | .71492 1.40870 | 11 11 | .710 1.40 | 85 11 620 11 | 3 7. 78 0 | REF |
| HEAT OF VAP | | ON (25 C |) | 9.70 | 86 | .44 11 | |
| 01 E14010 | | (NET |) 11 | 85.27 | 105 113 | GRAM REF 52. 11 12. 11 | |

2-OCTENE (CIS AND TRANS)

| SYNONYMS. FORMULA= C8H16 | C/H= 5 | .958 MW= | = 112.217 | VD= 3. | 8695 | |
|---|--------------------------------|-------------------------|-----------|------------------|-----------|-----|
| HEAT OF COMBUSTION LIQUID HEAT OF VAPORIZA | (NET) (GROSS) TION(25 C) | 1186. 1270. | .00 | 10569. 11319. | 11 | |
| DENSITY (GRAM/ML REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 20 C) .7221 1.4141 | REF 11(XX) 11(XX) | .7179 | REF 11(XX) | 30 C | |
| VAPOR PRESSURE(MIP 1 10 | | 40 | 100 | 400 | 125.3 | 20 |
| VAPOR PRESSURE | | OEFFICIEN | ITS | | | |
| FLASH POINT (DEG (| (CC) | REF | | C) REF • (1,3 | | |
| | LOWER PER RE | F | VOL (| | | |
| AUTOIGNITION TEMP DEG C DELAY | | | DEG | C REF | | |
| MAX FLAME VEL(CM/ | SEC) FL | AME TEMP(| DEG K) | VOL P | ERCENT FL | JEL |
| MIN IGN ENERGY(M) QUENCHING DISTANO | | | REF | ABS MIN | REF | |

2-METHYLHEPTENE

| SYNONYMS. FORMULA= C8H | | C/H= | 5.958 | MW= 112.21 | 7 VD≖ | 3.8695 | |
|--|-----------------------|---------------|-------------------|-----------------------------|-------------|---------------------|----------|
| HEAT OF COMB | | (NET |) 13 | AL/MOLE 183.50 267.66 | 10547 | . 11 | |
| DENSITY (GRA REFRACTIVE I SURFACE YENS VISCOSITY (C | M/ML) . NDEX I | 7205 •4123 | 11 11 | 1.4098 | 11 11 | .7123 | 20 20 |
| VAPOR PRESSU P 1 T -22.5 | 10 | 30 | 40 | 100 | 400 | 760 119.3 | 20 |
| VAPOR PRESS EQUATION 1 EQUATION 2 FLASH POINT(| A 7.0004 57.641 | -141 -64 | B 7.95 00.5 | C 224.98 -5.81 | D 3.5592 | MAX ERR 60 03 | |
| FLAMMABLE LI | VOL P | | ĒF | VOL | UPPER | | |
| AUTOIGNITION | | | | | | | |
| DEG C | DELAY(S | EC) RI | :r | DEG | C KEI | | |

2.3-DIMETHYL-2-HEXENE

| HEAT OF COMBI OF LIQUID | | () | IET) | 1180- | 90 | CAL/GRAI 10523. 11273. | 1.1 | |
|-------------------------------|----------------------|------------------|-------------------|--------|----------|------------------------------|---------|------|
| HEAT OF VAPO | | | | 12034 | 00 | 11213. | ** | |
| DENCITY (COA) | | 20 C | RE | F | 25 C | REF | 30 C | REF |
| DENSITY (GRAP REFRACTIVE I | M / M L / N D E X | 1.426 | 8 11 | | 1.4244 | 11 | 1.4217 | 20 |
| SURFACE TENS | ION | 23.97 | 20 |) | | | 22.90 | 20 |
| VAPOR PRESSUI | | | | | | | 740 | 055 |
| P 1 T -18.8 | | | | | | | | |
| | | | | | | | | |
| VAPOR PRESSI | JRE EC | UATIO | N COEF B | FICIEN | 1 S C | D | MAX ERR | AT P |
| EQUATION 1 EQUATION 2 | 7.105 | 7 -1 | 463.94 | 22 | 4.81 | | 60 | 100. |
| QUATION 2 | 58.04 | . 7 - | 6560 - 3 | _ | 5 92 | 2 0124 | 0.1 | 10. |
| | | | | | ~ | | | |
| FLASH POINT(| DEG C) | (C | C) A | EF | () | | | |
| FLASH POINT(I | DEG CI | LOWE PER 9 | R REF B(DD) | EF | VOL | OC) REF | | |

2.3.3-TRIMETHYL-1-PENTENE

| FORMULA= C8H | | | | | | | | | | |
|------------------------------|--------------------------------|-----------------|------------------|--------|--------|-------|-----------|-----------|----------|------|
| HEAT OF COMB | USTION | ١ | | K | CAL/MC | LE | CAL/C | GRAM REI | F | |
| OF LIQUID | | | | | | | | 33. 1 | | |
| HEAT OF VAPO | | ONI | 25 C) | | | O | 1120 | | . | |
| | | 20 | С | REF | : | 25 C | REF | 30 (| 0 | REF |
| DENSITY (GRA | M/ML) | .735 | 52 | 11 | | .7308 | 11 | .72 | 63 | 20 |
| REFRACTIVE I | | | | | | 1.415 | 1 11 | | | |
| SURFACE TENS /ISCOSITY (C | S) | | | 20 | | | | 2.6 • 1 | LI4 | 20 |
| APOR PRESSU | RECMM | HG) - | | | | | | | | |
| P 1 | | | | | | | | | | |
| -27.2 | J•U | | 4 • 4 | | | 20.1 | | 100.3 | | 20 |
| VAPOR PRESS | URE FO | UATI | ON C | OFF | ICIENT | S | | | | |
| EQUATION 1 | A | | В | 2.2 | . C | | D | MAX E | ERR | AT P |
| EQUATION 1 | 70 02 | 0 - | -1328 -724 | . 22 | 518 | 01 | 23 7401 | | 12 | 100. |
| QUATION 2 | | ,, | -124 | 702 | - 9 | • 5 1 | | | . 1 2 | 30. |
| FLASH POINT(| | | | | | | (OC) R | | | |
| | DEG C) MITS VOL | LON PSR | CC) | RE | F | | | EF | | |
| FLASH POINT(| MITS VOL 0. | LOW PSR 9 | CC) VER RE B(| F DD) | F | | (OC) R | REF | | |
| LAMMABLE LI | DEG C) MITS VOL O. | LOW PSR 9 | CC) IER RE B(| REDD) | TEMP(D | VOL | UPPER PER | REF EF | Fu | EL |
| AUTOIGNITION DEG C | DEG C) MITS VOL TEMPE DELAY(| LOW PSR 9 | IER RE | F AME | F | VOL | UPPER PER | REF EF | Fu | EL |

2,3,4-TRIMETHYL-1-PENTENE

| | | | KCAL | /MOLE | CAL/GR/ | AM REF | |
|--|------------------------------------|--------------------|----------|--------------|-----------|---------|--------|
| EAT OF COME | | | | | | | |
| EAT OF VAPO | | (GROSS | | | | | |
| | | 20 C | REF | 25 C | REF | 30 C | REF |
| DENSITY (GRA REFRACTIVE) SURFACE TENS | AM/ML) | .729 | 11 | .725 | 11 | .721 | 20 |
| CURFACE TENS | SION | 22.47 | 20 | 1.415 | 11 | 21.50 | 20 |
| ISCOSITY (| CS I | | | | | | |
| APOR PRESSU | JR E (MM | HG)-TEM | PERATURE | (DEG C) D | ATA | | |
| 27.5 | 10 | 30 | 40 | 100 | 400 | 760 | REF |
| -27.5 | 4.7 | 24.1 | | 49.8 | | 108.0 | 20 |
| VADOD DDEC | SIIDE EC | MATION | - | CAITC | | | |
| EQUATION 1 EQUATION 2 | A 0/3 | 2 -122 | B 00 | 210 66 | D | MAX ERR | AIP |
| FOUATION 2 | 79.29 | 2 - 132 35 - 72 | 45.2 | -9.05 | 24.1849 | 02 | 30. |
| | | | | | | | |
| FLASH POINT | IDEG C) | (CC) | REF | ((| OC) REF | | |
| LASH POINT | IMITS | LOWER | | | UPPER | | |
| LAMMABLE LI | IMITS VOL N. TEMPE DELAY(| LOWER PER R | EF | vol | UPPER | F | |

2,4,4-TRIMETHYL-1-PENTENE

| SYNONYMS. ALPHA-DI FORMULA= C8H16 | | MW= 112.217 | VD= 3. | 8695 | |
|---|--|----------------------------------|------------------------------|-----------------|-----------------|
| | (GROSS) 1 | AL/MOLE 180.00 264.16 | CAL/GRAM 10515. 11265. | REF 11 11 | |
| HEAT OF VAPORIZATI | (ON(25 C) | | | | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 20.79 20 | 25 C •7108 1•4060 | | | REF 20 20 |
| VAPOR PRESSURE(MM P 1 10 T -31.93 | HG)-TEMPERATU 30 4 18.9 | 0 100 44.1 | 400 | 760 101.4 | REF 20 |
| VAPOR PRESSURE EQ A EQUATION 1 6.936 EQUATION 2 78.44 | OUATION COEFFI B 5 -1302.40 3 -7079.0 | CIENTS C 219.69 -8.95 2 | | | |
| FLASH POINT(DEG C) | (CC) REF 1.5 10(| (O) | C) REF | | |
| FLAMMABLE LIMITS VOL 0. | | VOL 1 | UPPER | | |
| AUTOIGNITION TEMPE DEG C DELAY(420. 12. | SEC) REF | DEG | C KEF | | |
| MAX FLAME VEL(CM/S MIN IGN ENERGY(MIL QUENCHING DISTANCE | ST01: LIJOULE) = 1.7 | CH REF 5 (7)(57) | | | ÆL |

2,4,4-TRIMETHYL-2-PENTENE

| | TION (NET) (GROSS) ZATION(25 C) | 1178.6 1262.7 | 0 1 | .0503. | 11 |
|--|---|------------------------|-----------------|----------------|---------|
| DENSITY (GRAM/) REFEACTIVE INDI SURFACE TENSION VISCOSITY (CS) | 20 C ML) .7218 EX 1.4160 N 21.60 | REF 11 11 | .7176 1 | 1 .7 | 133 20 |
| VAPOR PRESSURE P 1 T -29.6 | 10 30 | 40 | 100 4 | 00 760 | |
| VAPOR PRESSURI EQUATION 1 6: EQUATION 2 7: FLASH POINTIDE | A H .9406 -1315 8.934 -716 G C) (CC) | C .39 219 8.2 -9 | .09 .01 23.7 | 816 REF | .12 30. |
| FLAMMABLE LIMI | TS LOWER VOL PER RE 0.9 8(| F | UPP VOL PER | | |
| | | | | | |
| AUTOIGNITION TE DEG C DEL 308. | EMPERATURE LAY(SEC) RE 3. 49 | | DES C | REF | |

3,4,4-TRIMETHYL-2-PENTENE (CIS AND TRANS)

| | | C/H= | 5.958 | MW= 112.21 | 7 VD= | 3.8695 | |
|-------------|--------------|------------------|-----------|------------|----------------|--------------------------------|------|
| | | | | L/MOLE | CAL/GI | RAM REF | |
| IEAT OF COM | | N (NET) (GROS | | | | | |
| EAT OF VAP | | | | | | | |
| | | 20.6 | 01.5 | 25 C | DEE | 30 C | 000 |
| ENSITY (GR | AM/ML) | .739 | 11 | .735 | 11 | 30 C •731 1•418 22•71 | 20 |
| EFRACTIVE | INDEX | 1.423 | 11 | 1.421 | 11 | 1.418 | 20 |
| SURFACE TEN | CS) | | 20 | | | 22.71 | 20 |
| | | | MPERATUR | E(DEG C) D | ATA | | |
| 1 | 10 | 30 | 40 | 100 | | 730 | |
| -25.5 | | | | 53.3 | | 112.0 | 20 |
| VAPOR PRES | SURE FO | DUATION | COFFEIC | IENTS | | | |
| | A | | В | C | D | MAX ERR 62 03 | AT P |
| QUATION 1 | 7.102 | 25 -14 52 -6 | 29.76 | 226.75 | 1 7559 | 62 | 100. |
| | | | | | | | |
| FLASH POINT | (DEG C | (CC |) REF | (1 | DC) RE | :F | |
| FLASH POINT | IMITS | LOWER | | | UPPER | | |
| FLAMMABLE L | IMITS VOL | LOWER PER | REF | | UPPER PER F | REF | |

DIISOBUTYLENE

SYNONYMS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) 25 C REF DENSITY (GRAM/ML) REFRACTIVE INDEX 1.4073 51 SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE (MM HG)-TEMPERATURE (DEG C) DATA VAPOR PRESSURE (FM NG) - TEMPERATURE (DE G. DEL T.)

P 1 10 30 40 100 400 760 REF

101.5 51(AQ) VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINTIDEG C) (CC) REF (OC) REF -6.5 1 UPPER FLAMMABLE LIMITS LOWER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF 51 (MM) 470. MAX FLAME VEL (CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) = 1.75 (7)(57)(QQ)
QUENCHING DISTANCE(CM) = .457 7(QQ)

2,6-DIMETHYL-3-HEPTENE (CIS AND TRANS) SYNONYMS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) 15.5 C REF DENSITY (GRAM/ML) .722 1 REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF 21. 1(L) FLAMMABLE LIMITS LOWER UPPER VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE)=

QUENCHING DISTANCE (CM) =

1-DECENE

| HEAT OF CO | MBJSTION | ١ | | KCAL/MO | LE | CAL | GRAM | REF | |
|---------------------------------|-----------------------------|----------------------|----------------|----------------|----------------|----------------------|--------------|---------|------|
| OF LIQUID | | (N | ET) | 1476.7 | ' 6) (| 10 | 528. | 11 | |
| HEAT OF VA | POR IZAT | ION125 | C) | 1581.9 12.0 |)6 | 8 9 | 5.98 | 11 | |
| | | 20 C | RE | F | 25 C | REI | = | 37.78 C | REF |
| DENSITY (G REFRACTIVE | RAM/ML) | 1 421 | 1 11 46 11 | | 1 4101 | 2 11 | | | |
| SURFACE TE | | 1.721 | 7 0 11 | | 23.54 | | | | |
| VISCOSITY | | | | | | • • | | .877 | 11 |
| VAPOR PRES | SURE (MM | HG)-T | EMPER/ | TUREIDE | G C) D | ATA | | | |
| P 1 | 10 | 3 | 0 | 40 | 100 | 400 |) | 760 | REF |
| 14.7 | 53.7 | | | 83.3 | 106.5 | 149. | 2 1 | 70.6 | 21 |
| VAPOR PRE | SSURE E | DUATIO | N COEF | FICIENT | S | | | | |
| EQUATION 1 EQUATION 2 | A | | В | C | | D | | MAX ERR | AT P |
| EQUALION I | 1.01 | 72 -2 | 003.09 | 246 | .1/ | | | 2.51 | 400. |
| EQUATION 2 | 60.17 | 71 - | 7434.3 | -6 | .07 | 47.738 | 31 | 1.24 | 400. |
| EQUATION 2 | | | | | | | | 1.24 | 400. |
| FLASH POIN | T(DEG C) | LOWE! | C) F | REF | ((| UPPER | REF | ~~~~ | |
| FLASH POIN | T(DEG C) LIMITS VOL .55 AT | LOWEI PER BO C | C) A REF 14(U) | REF | VOL | UPPER PER 80 C | REF 14(U) | ~~~~ | |
| FLASH POIN FLAMMABLE AUTOIGNITI | T (DEG C) LIMITS VOL .55 AT | LOWER PER BO C | C) A REF 14(U) | REF | VOL | UPPER | REF 14(U) | ~~~~ | |
| FLAMMABLE AUTOIGNITI | TIDEG CI | LOWEI PER 80 C | R REF 14(U) | 5 | VOL .7 AT 8 | UPPER PER 80 C | REF 14(U) | | |

DIAMYLENE

SYMONYMS. FORMULA= 10H18 C/H= 6.620 MW= 138.255 VD= 4.7674 KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE (DEG G) DATA
P 1 10 30 40 100 400 760
150.0 760 REF 3 ______ VAPOR PRESSURE EQUATION COEFFICIENTS D MAX ERR AT P A B C EQUATION 1 EQUATION 2 (OC) REF 48. 1,3,4 FLASH POINT(DEG C) (CC) REF FLAMMABLE LIMITS LOWER UPPEK VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF MAX FLAME VELICM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE)= QUENCHING DISTANCE(CM)=

TRIISOBUTYLENE

| SYNONYMS. FORMULA= C12H | | 5.958 MW= | 168.325 | V D= 5 | 5.8043 | |
|--|-------------------------|-----------------------|------------------|-----------------|----------------|-----------|
| HEAT OF COMBJ | STION (NET | | OLE | CAL/GRA | AM REF | |
| HEAT OF VAPOR | | | | | | |
| | 20 C | REF | 25 C | REF | | |
| DENSITY (GRAM REFRACTIVE IN SURFACE TENSI VISCOSITY (CS | ON | | | | | |
| VAPOR PRESSUR | | EMPERATURE (D | EG C) DAT | Α | | |
| P 1 T 18.0 | 10 30 56.5 | 0 40 86.7 | 100 110.0 | 400 153.0 | 760 179.0 | REF 21 |
| VAPOR PRESSU | RE EQUATION | COFFEICIEN | TS | | | |
| EQUATION 1 EQUATION 2 | 7.0481 -16 48.378 -1 | 565.67 21 7028.1 - | 6.64 4.27 -20 | .8550 | -2.31 -1.41 | 400. |
| FLASH POINTID | | | | | | |
| FLAMMABLE LIM | ITS LOWER VOL PER | l REF | U VOI. P | IPPER PER RE | F | |
| AUTOIGNITION | TEMPERATURE | | DEC | C REF | | |
| 413. | CLATTSCOT | 51 | 060 | C REF | | |
| MAX FLAME VEL | (CM/SEC) | FLAME TEMP(| DEG K) | VOL | PERCENT FL | JEL |
| MIN IGN ENERG QUENCHING DIS | | | REF | ABS MI | N REF | |

1,1-DINEOPENTYLETHYLENE

SYNONYMS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) 25 C REF DENSITY (GRAM/ML) REFRACTIVE INDEX 1.4271 51 SURFACE TENSION VISCOSITY (CS) OR PRESSURE(MM HG)-TEMPERATURETUES C. DATA 1 10 30 40 100 400 760 REF 177.5 51(AQ) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA VAPOR PRESSURE EQUATION COEFFICIENTS D MAX ERR AT P A B C EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF 455. 51 MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE)= QUENCHING DISTANCE (CM) =

1-TETRADECENE

| HEAT OF COMBUSTIO | N | KCAL/M | 10LE | CAL/GRAM | REF | |
|---|--|--------|---------|------------------|---------------|------|
| OF LIQUID | (NET) | 2058. | .40 | 10482. | 11 | |
| HEAT OF VAPORIZAT | | | . 68 | 11232. | 11 | |
| | | | | | | |
| | 20 C | | | | 37.78 C | REF |
| DENSITY (GRAM/ML) | .7713 | 20 | .7641 | 20 | | |
| REFRACTIVE INDEX | | | | | | |
| SURFACE TENSION VISCOSITY (CS) | 24.99 | 20 | 24.07 | 20 | 1.92 | 11 |
| | | | | | | |
| VAPOR PRESSURE(MM | | | | | 7/0 | 0.55 |
| P 1 10 | | | | | 760 | |
| T 74.5 119.0 | 144.6 | | 1//•1 | | 491.1 | |
| VAPOR PRESSURE E | | | | | | |
| Α | В | | C | D | MAX ERR | AT P |
| EQUATION 1 7.65 | 80 -2236 | .23 21 | 7.39 | | -2. 42 | 100. |
| EQUATION 2 14.6 | 98 -677 | 8.2 | .82 -98 | 8.2463 | 36 | 30. |
| | | | | | | |
| | 110. | | | | | |
| | 110. | 6 | | C) REF | | |
| | 110. | 6 | | C) REF | | |
| FLAMMABLE LIMITS VOL | LOWER PER REI | 6 | | C) REF | | |
| FLAMMABLE LIMITS VOL | LOWER PER REI | 6 | (0 (| JPPER PER REF | | |
| FLAMMABLE LIMITS VOL AUTOIGNITION TEMP DEG C DELAY | LOWER PER REI ERATURE (SEC) REI | 6 | VOL I | JPPER PER REF | | |
| FLAMMABLE LIMITS VOL | LOWER PER REI ERATURE (SEC) REI | 6 | (0 (| JPPER PER REF | | |

1-HEXADECENE

QUENCHING DISTANCE(CM)=

| SYNONYMS. FORMULA= C16H32 | C/H= 5 | .958 MW= | 224.433 | VD= 7 | 7.7391 | |
|--|---------------------------|------------------|-----------------|-------------|---------------------------|--------------------|
| HEAT OF COMBUSTIO | V | KCAL/M | ULE | CAL/GRA | M REF | |
| OF LIQUID | (NET) | 2349. | 80 | 10470. | 11 | |
| HEAT OF VAPORIZAT | | 2518. | 12 | 11226. | . li | |
| | 20 C | REF | 25 C | REF | 37.78 C | REF |
| DENSITY (GRAM/ML) | | | | | | |
| REFRACTIVE INDEX | | | | | | |
| SURFACE TENSION VISCOSITY (CS) | 25.75 | 20 | 24.03 | 20 | 3.04 | 11 |
| VAPOR PRESSURE(MM | HG)-TEMP | ERATURE (DI | EG C) DAT | TA | | |
| P 1 10 | 30 | 40 | 100 | 400 | 760 | REF |
| T 101.6 146.2 | | 178.8 | 205.3 | 250.0 | 274.0 | 21 |
| VAPOR PRESSURE EGA A EQUATION 1 8.324 EQUATION 2 71.3 | 8 46 -2715 16 -1095 | .53 224 5.9 - | 4.62 7.10 44 | D 4.3810 | MAX ERR -1.99 -1.84 | AT P 40. 40. |
| FLASH POINTIDEG C | (CC) | Rf:F | (00 | C) REF | | |
| FLAMMABLE LIMITS VOL | LOWER PER REI | | VOL F | JPPER | F | |
| AUTOIGNITION TEMPE | | | | | | |
| DEG C DELAY | | | DEG | C REF | | |
| 240. 78. | , 49 | | 253. | 50 | | |
| MAX FLAME VEL(CM/S | SEC) FLA | ME TEMP(C | EG K) | VOL | PERCENT FU | EL |
| | | STOICH R | FF | ABS MI | N REE | |
| MIN IGN ENERGY (MIL | | | | 700 111 | n ner | |

TETRAISOBUTYLENE

| SYNONYMS. FORMULA= C16H32 | C/H= 5.958 MW= | = 224.433 VD= | 7.7391 |
|---|------------------|------------------|--------------|
| | | | |
| HEAT OF COMBUSTION | (NET) (GROSS) | 10LE CAL/G | RAM REF |
| | | | |
| DENCITY (COMMAN) | 20 C REF | 25 C REF | 37.78 C REF |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 1.4482 2 | 1.4475 51 | 30 SSU 511AR |
| WARDON DOECCHOE (MM | | | |
| VAPOR PRESSURE(MM P 1 10 | | | 760 REF |
| P 1 10 T 63.8 108.5 | 142.2 | 167.5 214.6 | 240.0 21 |
| VAPOR PRESSURE EQ | | | |
| A | B | C D | MAX ERR AT P |
| A EQUATION 1 7.943 | 5 -2457.55 24 | 5.54 | -1.46 100. |
| EQUATION 2 28.82 | 5 -7102.8 - | 1.33 -16.1902 | -1.01 100. |
| FLASH POINT(DEG C) | | | |
| FLAMMABLE LIMITS | LOWER PER REF | UPPER VOL PER | |
| AUTOIGNITION TEMPE DEG C DELAYI 415. | | DEG C R | |
| MAX FLAME VEL(CM/S | | DEG K) VOI | |
| MIN IGN ENERGY (MILE QUENCHING DISTANCE | LIJOULE) = | | |

1-OCTADECENE

| SYNONYMS. FORMULA= C18H36 C/H= | 5.958 Mw= 252.48 | 8 VD= 8.7065 |
|--|--------------------|-------------------------------|
| HEAT OF COMBUSTION | KCAL/MOLE | CAL/GRAM REF |
| OF LIQUID (N | | |
| HEAT OF VAPORIZATION(25 | 2830.34 C) | |
| 20 (| REF 30 C | KEF 37.78 C REF |
| DENSITY (GRAM/ML) .7891 | .7818 | 20 |
| REFRACTIVE INDEX 1.444 SURFACE TENSION 26.36 | | |
| | | |
| VISCOSITY (CS) | | |
| VAPOR PRESSURE(MM HG)-1 | | ATA 400 760 REF |
| | | 314.2 20 |
| | | |
| VAPOR PRESSURE EQUATION | N COEFFICIENTS | n HAY FRR AT R |
| A FOLIATION 1 - 6.9188 -1 | 806.37 133.10 | D MAX ERR AT P 41 10. |
| EQUATION 2 169.083 -1 | 8051.7 -20.70 11 | 18.4692 .47 30. |
| | | |
| FLAMMABLE LIMITS LOWE VOL PER | R REF VOL | UPPER PER REF |
| AUTOIGNITION TEMPERATUR DEG C DELAY(SEC) 251. | | G C REF |
| MAX FLAME VEL(CM/SEC) MIN IGN ENERGY(MILLIJOU QUENCHING DISTANCE(CM)= | STOICH REF LE)= | VOL PERCENT FUEL ABS MIN REF |

11-TRICOSENE SYNONYMS. FORMULA = C23H46 C/H= 5.958 MW= 322.623 VD= 11.1249 KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P EQUATION 1 EQUATION 2 . FLASH POINT(DEG C) (CC) REF (OC) REF 140. 1 FLAMMABLE LIMITS LOWER ITS LOWER UPPER VOL PER REF UPPER AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF

MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL

STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE (CM) =

PROPADIENE

| SYNONYMS. FORMULA= C3H4 | C/H= 8.937 MW | = 40.065 VD= | 1.3816 |
|---|---------------------------------|---------------------|----------|
| HEAT OF COMBUSTION OF GAS | (GROSS) 464 | . 71 11599. | . 11 |
| HEAT OF VAPORIZATI | UNI25 () 3 | .67 91.00 |) II |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | -34.5 C REF .6575 11 | | |
| VAPOR PRESSURE (MM P 1 10 T | 30 40 | 100 400 | -34.5 |
| VAPOR PRESSURE EQ | UATION COEFFICIE | NTS | |
| EQUATION 1 EQUATION 2 | В | C D | |
| FLASH POINT (DEG C) | | (OC) REF | |
| FLAMMABLE LIMITS VOL | | UPPER VOL PER RE | F |
| AUTOIGNITION TEMPER DEG C DELAY(| | DEG C REF | |
| MAX FLAME VEL(CM/SI 73.8 (62) MIN IGN ENERGY(MILE QUENCHING DISTANCE | 2463 (6) STOICH LIJOULE)= | 2) 6 | .04 (73) |

1.2-BUTADIENE

| OF LICUID | UST ION | (NET) | KCAL/ 583 | MOLE •90 | CAL/GRAM 10794. 11378. 82.64 | RE F 11 | |
|------------------------------|--------------------------------|-----------------------|--------------------|-----------------|---------------------------------------|------------|------|
| HEAT OF VAPO | RIZATIO | N(25 C) | 4 | .47 | 82.64 | 11 | |
| DENSITY (GRA REFRACTIVE I | M/ML) . | 20 C | REF | 25 C | REF | 30 C | REF |
| SURFACE TENS VISCOSITY (C | | 5.56 | 20 | | | 15.24 | 20 |
| APOR PRESSU | | | | | | | |
| 1 | 10 | 30 | 40 | 100 | 400 | 760 | REF |
| -89.0 | -64.2 | | -44.3 | -28.3 | 1.8 | 18.5 | 21 |
| VAPOR PRESS | URE EQU | ATION CO | EFFICIE | NTS | | | |
| QUATION 1 QUATION 2 | A | В | | С | D | MAX ERR | AT P |
| CUATION 1 | 6.6414 | -934. | 32 2 | 29.71 | 0 (0(3 | 85 | 10. |
| QUALION 2 | 88.303 | -5/[1 | | 10.98 2 | 8.4941 | 53 | 10. |
| | | • | | | | | |
| | | | | | | | |
| LAMMABLE LI | MITS L | OWER | | | UPPER | | |
| LAMMABLE LI | MITS L | OWER R REF | : | VOL | UPPER PER REF | | |
| LAMMABLE LI | MITS U VOL PU 2.0 | OWER ER REF 8(0 | :)D) | VOL 12 | UPPER |)) | |
| | MITS 1 VOL PE 2.0 2.0 | OWER REF 8(0 12(| : (D) (A,YY) | VOL 12 | UPPER PER REF . 8(D) .5 12(/ |)) | |
| | MITS I VOL PE 2.0 2.0 | OWER REF 8(0 12(| : (D) (A,YY) | VOL 12 11 | UPPER PER REF . 8(D) .5 12(/ |)) | |

MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM) =

1.3-BUTADIENE

| HEAT OF COMB | SUSTION | ł | KCAL | /MOLE | CAL/ | GRAM RE | F | |
|---------------------------------------|-----------------------------|---|-----------------------------------|-------------------------------------|--------------------------|-------------------------|--------------|------|
| OF LIQUID | | (NET) | 57 | 70.82 | 105 | 53. | 1 | |
| | | | | 2.38 | | | | |
| HEAT OF VAPO | RIZATI | ON(25 C) | | 5.11 | 94. | 47 1 | . l | |
| | | 20 C | REF | 25 C | REF | 30 | C | REF |
| DENSITY (GRA REFRACTIVE I | | | 11(0) | .6149 | 11(1 | •60 | 186 | 20 |
| SURFACE TENS | | | 20 | | | 12. | 20 | 20 |
| VISCOSITY (C | | | | | | | | |
| VAPOR PRESSU | | | | | | | | |
| P 1 | 10 | 30 | 40 | 100 | 400 | 760 | | REF |
| 1 -102.8 | -79 .7 | | -61.3 | 1 | 19.3- ر | -4.5 | | 21 |
| VAPOR PRESS | URE EQ | UATION C | OEFFICI | ENTS | | | | |
| COUATION 1 | A 050 | β | 0.1 | C 71 | D | MAX | ERR A | 400 |
| EQUATION 1 EQUATION 2 | 78.21 | 5 -500 | • 9 I | -0.51 | 1.4727 | , | • 36 • 59 | 400. |
| | | | | | | | | |
| , casii i stiii i | DEG CI | -76. | | ((| JC J R | EF | | |
| | <i>DEG C1</i> | | | | <i>(</i>) | er | | |
| | | -76. | | | UPPER | | | |
| | MITS VOL | -76. LOWER PER RE | 4 F | VOL | UPPER PER | REF | | |
| | MITS VOL 2. | -76. LOWER PER REI | 4 F 3 | VOL | UPPER PER | REF 1,3 | | |
| FLAMMABLE LI | MITS VOL 2. | -76. LOWER PER RES | 4 F 3 (A,YY) | VGL 11 | UPPER PER •5 | REF 1,3 12(A,YY) | | |
| | MITS VOL 2. | -76. LOWER PER REI | 4 F 3 (A,YY) | VGL 11 | UPPER PER | REF 1,3 12(A,YY) | | |
| FLAMMABLE LI | MITS VOL 2. 2. | -76. LOWER PER REF 0 1.: 0 12 0 79 | 4 F 3 (A,YY) | VGL 11 11 | UPPER PER •5 •5 | REF 1+3 12(A,YY) | | |
| FLAMMABLE LI AUTOIGNITION DEG C | MITS VOL 2. 2. | LOWER PER REI 0 1.2 0 79 RATURE SEC) REI | 4 F 3 (A,YY) | VOL 11 11 11 | UPPER PER •5 •5 | REF 1+3 12(A, YY) | | |
| FLAMMABLE LI AUTOIGNITION DEG C 450. | MITS VOL 2. 2. | -76. LOWER PER REI 0 1.2 0 79 RATURE SEC) REI | 4 F 3 (A,YY) | VOL 11 11 11 0EG 429 | UPPER PER •5 •5 •5 •5 | REF 1+3 12(A,YY) | | |
| FLAMMABLE LI AUTOIGNITION DEG C | MITS VOL 2. 2. | -76. LOWER PER REI 0 1.2 0 79 RATURE SEC) REI | 4 F 3 (A,YY) | VOL 11 11 11 | UPPER PER •5 •5 •5 •5 | REF 1,3 12(A,YY) | | |
| FLAMMABLE LI AUTOIGNITION DEG C 450. | MITS VOL 2. 2. TEMPE DELAY(| -76. LOWER PER RES 0 1.: 0 12 0 79 RATURE SEC) RES 1 54 | 4 F 3 (A,YY) F (3) | VOL 11 11 11 11 11 P(DEG K) | UPPER PER5555555 | REF 1,3 12(A,YY) | T FUE | |

1,2-PENTADIENE

| HEAT OF COMBL OF LIQUID | ISTION | (N | ET) | 730.10 | L E 0 | 1071 | RAM RI 8. | il | |
|--|--------|------------------|------------------------|----------|-------------|--------------|--------------|------|------------|
| HEAT OF VAPOR | CIZALI | UNIZE | CI | 6.1 | • | 90. | 28 | 11 | |
| | | | | | | | | | |
| DENSITY (GRAM REFRACTIVE IN SURFACE TENSI VISCOSITY (CS | ON | 19.57 | 91 11 | | 1.4177 | 3 11 | 1.4 | 4144 | 6 20 20 |
| VAPOR PRESSUR | | | EMPERA | TURE (DE | G C) D | ATA | | | |
| P 1 T -70.0 - | 10 | -26 | 0 • 0 | 40 | 100 -4.3 | 400 | 760 44. | • | REF 20 |
| VAPOR PRESSUEQUATION 1 | | | | | | | | | |
| EQUATION 1 | 7.010 | 5 -1 | 154.20 | 234 | .63 | U | MAA | . O2 | 100. |
| | | | | | | | | .21 | 30. |
| FLASH POINT(C | DEG C) | (C) | C) RI | EF | ((| OC) R | EF | .21 | 30. |
| FLASH POINT(C | TEMPE | LOWE PER 5 | R R REF 8(DD) | EF | VOL | UPPER PER | REF | .21 | 30. |

CIS-1.3-PENTADIENE

MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM) =

| SYNONYMS. CIS-PIPE FORMULA= C5H8 | C/H= 7.448 M | W= 68.120 VD= | 2.3489 | |
|---|---|---------------------------------------|----------------------------|-----------------------|
| HEAT OF COMBUSTION OF LIQUID HEAT OF VAPORIZATI | (NET) 71 | /MOLE CAL/ 4.40 104 6.48 111 | GRAM REF 11 105. 11 | |
| HEAT OF VAPORIZATI | ON(25 C) | 5.75 84 | .41 11 | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 20 C REF .69102 11 1.43634 11 19.39 20 | 25 C REF .68592 11 1.43291 11 | .68078 1.42943 18.21 | REF 20 20 20 |
| VAPOR PRESSURE(MM P 1 10 T -70.2 -43.1 | HG)-TEMPERATURE 30 40 | (DEG C) DATA 100 400 -5.0 | 760 44.1 | REF 20 |
| VAPOR PRESSURE EQ | UATION COEFFICE B 7 -1118.75 1 -5679.2 | ENTS C D 231.36 -7.97 14.729 | MAX ERR •03 •09 | AT P 10. 30. |
| FLASH POINT (DEG C) | | (OC) | | |
| FLAMMABLE LIMITS VOL | LOWER PER REF 5 8(DD) | UPPER VOL PER | | |
| AUTOIGNITION TEMPE DEG C DELAY(| | DEG C | REF | |
| MAX FLAME VEL(CM/S) 46.5 (63) | 2336 (` Stoich | | 3.47 (72) | EL |

TRANS-1, 3-PENTADIENE

| EAT OF COMB | US TION | | | A1 /MOLE | | CAL /CDAI | | |
|------------------------------|--------------------|-----------------|----------------|----------|------------------|-----------|---------------|-----|
| F LIQUID | 021104 | 1 NET | 1 | 714 50 | | 104RO | 7 KEF | |
| or Electo | | 108055 | <u>'</u> | 756.58 | | 11107. | 11 | |
| EAT OF VAPO | | ON125 C |) | 5.55 | | 81.47 | | |
| | | 20 C | REF | 2 | 5 C | REF | 30 C | REF |
| DENSITY (GRA | M/ML) | .67603 | 11 | • 6 | 7102 | 11 | .66597 | 20 |
| REFRACTIVE I | | | | 1. | 42669 | 11 | | |
| SURFACE TENS /ISCOSITY (C | 5) | | | | | | 16.66 | |
| APOR PRESSU | RELMM | HG)-TEM | PERATU | REIDEG | C) DAT | ΓΑ | | |
| Pl | | | | | | | | |
| -72.2 | -45.1 | -28.7 | | | 7.1 | | 42.0 | 20 |
| VAPOR PRESS | URE EQ | UATION | COEFFI | CIENTS | | | | |
| EQUATION 1 | | | B a 02 | | | | MAX ERR 03 | |
| QUATION 2 | 69.38 | 9 -55 | 77.1 | -7.8 | 5 15 | .0206 | .08 | 30. |
| FLASH POINT | | | | | | | | |
| | | | NET | | | 10(1 | | |
| | M I T S | LOWER | | | -29 |). 10(L | .,22) | |
| | M I T S VOL | | EF | | -29 | . 10(1 | .,22) | |
| AUTOIGNITION | MITS VOL 1. | LOWER PER R 5 8 | EF (DD) | | -29 VOL F | Der Ref | .,22) | |
| FLAMMABLE LI | MITS VOL 1. | LOWER PER R 5 8 | EF (DD) | | -29 | Der Ref | .,22) | |
| AUTOIGNITION | MITS VOL 1. TEMPE | LOWER PER R 5 8 | EF (DD) | | -29 VOL F | OPPER REF | .,22) | |

1,4-PENTADIENE

| SYNONYMS. FORMULA= C5H8 | C/H= 7 | .448 MW= | 68.120 | VD= 2 | 2.3489 | |
|---|-----------------------|------------------------|-----------------|-----------------------------|--------------------------|--------------|
| HEAT OF COMBUSTION | N (NET) (GROSS) | KCAL/M 721. 763. | 0LE 20 28 | CAL/GRA 10587. 11205. | M REF 11 11 | |
| HEAT OF VAPORIZAT | ION(25 C) | 5. | 45 | 80.01 | 11 | |
| | 20 C .66076 | REF 11 | 25 C •65571 | REF | | |
| VAPOR PRESSURE(MM P 1 10 T -83.5 -57.1 | 30 | 40 | 100 -20.6 | 400 8.3 | 26.1 | 21 |
| VAPOR PRESSURE EGA EQUATION 1 7.120 EQUATION 2 33.42 | в 00 -1142. | .58 243 | TS : 3.94 | D | MAX ERR -2.68 1.99 | AT P 400. |
| FLASH POINT(DEG C | | | | | | |
| | PER REF | • | | | F | |
| AUTOIGNITION TEMPE DEG C DELAY | | | DEG | C REF | | |
| MAX FLAME VEL(CM/S 46.6 (63) MIN IGN ENERGY(MIL QUENCHING DISTANCE | 2 = (LIJOULE) | 372 (7) STOICH R | | | .33 (72) | JEL |

2,3-PENTADIENE

| SYNONYMS. FORMULA= C5H8 | | | | | | |
|---|---|-----------------------|-------------------------------|------------------------------|----------------------|-----------|
| HEAT OF COMBUST OF GAS HEAT OF VAPORIZ | ION (NET) (GROSS) ATION(25 C) | KCAL/I 734 776 | MOLE .55 .63 | CAL/GRAM 10783. 11401. | REF 11 11 | |
| DENSITY (GRAM/M REFRACTIVE INDE SURFACE TENSION VISCUSITY (CS) | 20 C L) .69502 X 1.42842 19.87 | REF 11 11 20 | 25 C •69000 1•42509 | | 18.69 | 20 |
| VAPOR PRESSURE(P 1 1 T -65.2 -38 | 0 30 •4 -22•1 | ERATURE (1 40 | DEG C) DAT 100 6 | A 400 | | REF 20 |
| VAPOR PRESSURE EQUATION 1 6. EQUATION 2 82 FLASH POINT (DEG | EQUATION CO A B 8976 -1091 .521 -633 | 56 27 | NTS C 23.49 -9.75 17 | D .1003 | MAX ERR 13 .19 | |
| | S LOWER OL PER REA 1,5 8(1 | = | VOL P | | | |
| AUTOIGNITION TE DEG C DEL | | | DEG | C REF | | |
| MAX FLAME VEL(C | | | | | DCENT EN | C1 |

CYCLOPENTADIENE

| SYNONYMS. FORMULA= C5H6 | C/H= 9. | 930 MW= | 66.104 | VD= 2. | 2794 | |
|---|-------------------------|-----------|--------|----------------|-------------|----------|
| HEAT OF COMBUSTION | (GROSS) ON(25 C) | | DLE | CAL/GRAM | REF | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 20 C .8021 1.4429 | REF 2 | | | | |
| VAPOR PRESSURE(MM P 1 10 T | HG)-TEMPE | | | | 760 40.8 | REF 2 |
| VAPOR PRESSURE EQUATION 1 EQUATION 2 | | EFFICIENT | | D | MAX ERR | AT P |
| FLASH POINT(DEG C) | (CC) | REF | 100 |) REF | | |
| FLAMMABLE LIMITS VOL 1 | LOWER PER REF | | | PPER ER REF | | |
| AUTOIGNITION TEMPER DEG C DELAY(S | SEC) REF |)(24)(B) | DEG | C REF | | |
| MAX FLAME VEL (CM/SE | EC) FLAI | ME TEMP(D | EG K) | VOL PI | RCENT FU | EL |
| MIN IGN ENERGY(MILL QUENCHING DISTANCE | IJOULE)= | | 711571 | ABS MIN | REF | |

3-METHYL-1,2-BUTADIENE

| HEAT OF COMBI | | | | | | | | | |
|---------------|------------------------------------|----------|---|----------|---------|-------------------|----------|----------|----|
| OF GAS | | | | | | | 2. 1 | | |
| HEAT OF VAPOR | | ON (25 | | | | 1137 | 0. 1 | 1 | |
| | | 20 C | RE | F | 25 C | | | C RE | EF |
| DENSITY (GRA | M/ML) | .6860 | 7 11 | | .68064 | 11 | .67 | 0 20 | |
| REFRACTIVE I | | | | | 1.4169 | 92 11 | 1.4 | 04 20 |) |
| SURFACE TENS | S) | | 20 | | | | 17. | 05 20 |) |
| APOR PRESSU | RE(MM | HG) - T | | TURE | EG C) (| DATA | | | |
| P 1 | | | | | | | | | |
| -72.7 | | | | | | | | 20 | |
| VAPOR PRESSI | JRE EQ | OITAU | N COEF | FICIEN | | | | | |
| | A | | В | | С | D | MAX | ERR AT P | • |
| QUATION 1 | 6.924 | 4 -1 | 097.07 | 23 | 11.16 | | 1 | .94 100 | ١. |
| CHATION 3 | | | | | | | | | • |
| | 92.00 | 7 – | 6358.1 | - ! | 1.37 | 38.0557 | -1 | .10 30 | |
| FLASH POINT(| 92.00 DEG C) 41TS VOL | C. | 6358.1 C) R | -1 EF | .1.37 | 38.0557 | -1 EF | .10 30 | |
| | 92.00 DEG C) HITS VOL 1. | COLOWE | 6358.1 C) R R REF 8(DD) | -1 EF | VOL | 38.0557 OC) RI | -1 EF | .10 30 | |

2-METHYL-1.3-BUTADIENE

```
SYNONYMS. ISOPRENE

        HEAT OF COMBUSTION
        KCAL/MOLE
        CAL/GRAM
        REF

        OF LIQUID
        (NET)
        713.25
        10471.
        11

        (GROSS)
        755.33
        11088.
        11

        FAT OF VAPORIZATION(25 C)
        6.30
        92.48
        11

20 C REF 25 C REF
DENSITY (GRAM/ML) .68095 11 .67587 11
REFRACTIVE INDEX 1.42194 11 1.41852 11
SURFACE TENSION 16.9 (8)(61)
VISCOSITY (CS) .317 (8)(61)
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
P 1 10 30 40 100 400 760 REF
T -79.8 -53.3 -32.6 -16.0 15.4 32.6 21
                                                                                  21
_____
VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P

EQUATION 1 6.8205 -1049.84 233.72 .98 400.

EQUATION 2 69.999 -5353.5 -8.04 16.9774 .54 400.
                                                                            .54 400.
FLASH POINT(DEG C) (CC) REF (OC) REF -48.5 (8)(9)
                            18.5
                            -54. 3,4
FLAMMABLE LIMITS LOWER

VOL PER REF

1.5 8(DD)
                                                      UPPER
                                          UPPER
VOL PER REF
AUTOIGNITION TEMPERATURE
      DEG C DELAY(SEC) REF DEG C REF
220. 1 440 3,4,(22)(24)(B)
                                FLAME TEMP(DEG K) VOL PERCENT FUEL
2344 (7) 3.41 (72)
STOICH REF ABS MIN REF
MAX FLAME VEL(CM/SEC)
      45.0 (63)
MIN IGN ENERGY(MILLIJOULE)=
QUENCHING DISTANCE(CM) =
```

1.4-HEXADIENE

| SYNONYMS. ALLYLP FORMULA= C6H10 | | MW= 82.147 | VD= 2. | 8326 | |
|---|-----------------------------|---------------------------|----------------------|-------------|-----------|
| HEAT OF COMBUSIT | ON (NET) (GROSS) | AL/MOLE | CAL/GRAM | REF | |
| DENSITY (GRAM/ML REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 1.415 11 19.31 20 | .695 | 11 11 | •690 | 20 20 |
| VAPOR PRESSURE(MP 1 10 T -54.7 -26. | 30 40 | 0 100 | 400 | 760 65.0 | REF 20 |
| VAPOR PRESSURE A EQUATION 1 7.0 EQUATION 2 158. | 8 184 -1206.44 | C 226.59 -21.50 272 | 1.1810 | -1.58 | 30. |
| FLASH POINTIDEG | | | | | |
| | LOWER L PER REF 2.0 6 | | IPPER ER REF 6 | | |
| AUTOIGNITION TEM DEG C DELA | | DEG | C REF | | |
| MAX FLAME VELICM MIN IGN ENERGYIM QUENCHING DISTANO | STOIC | EMP(DEG K) | | | JEL |

1,5-HEXADIENE

| FORMULA= C6H10 | BIALLYL C/H= 7. | 150 MW= | 82.147 | VD= 2. | 8326 | |
|---|--------------------------|----------------|-----------------|----------------|-------------|----------|
| | (NET) (GRESS) | 867.4 920.0 | 0 | 10559. | 11 | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCUSITY (CS) | .6923 1.4042 18.46 | 11 20 | .6878 1.4010 | 11 11 | .6833 | 20 20 |
| VAPOR PRESSURE(MM P 1 10 T -58.6 -30.4 | 30 | 40 | 100 | 400 | 760 59.5 | 20 |
| VAPOR PRESSURE EQ A EQUATION 1 7.006 EQUATION 2 74.31 | 8 7 -1184. | 62 227 | .66 | D | MAX ERR | AT P |
| | | | U VOL P | PPER ER REF | | |
| | | | | | | |
| AUTOIGNITION TEMPE DEG C DELAY(330. | SEC) REF |)(24)(B,A | | C REF | | |

CYCLOHEXADIENE

SYNONYMS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF VAPOR PRESSURE EQUATION COEFFICIENTS D MAX ERR AT P A B C EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF FLAMMABLE LIMITS LOWER UPPER VOL PER REF UPPER AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF 360. (22)(24)(B) MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM)=

2-METHYL-1,3-PENTADIENE

| SYNONYMS. FORMULA= C6H1 | 0 C/H= | 7.150 | MW= { | 32.147 | VD= | 2.8326 | |
|--|--------------------------------------|------------------|-------|-------------|--------------|-----------------------------------|-----------|
| HEAT OF COMBL | (GRO IZATION(25 |) \$\$) C) | | | | AM REF | |
| DENSITY (GRAM REFRACTIVE IN SURFACE TENSI VISCOSITY (CS | 1/ML) .719 IDEX 1.446 ON 21.52 | REF 11 11 | . 3 | 25 C 714 | REF 11 | 40 C | |
| VAPOR PRESSUR P 1 T | E(MM HG)-T | | | | | 760 76.0 | REF 11 |
| VAPOR PRESSU EQUATION 1 EQUATION 2 | RE EQUATIO A | | | | D | MAX ERR | AT P |
| FLASH POINT(D | EG C) (C | C) REF | | (OC |) RE | F | |
| FLAMMABLE LIM | ITS LOWE VOL PER | | | | PPER ER R | EF | |
| AUTOIGNITION DEG C D | TEMPERATURI ELAY(SEC) | | | DEG | C RE | F | |
| MAX FLAME VEL 39.0 (6 MIN IGN ENERG QUENCHING DIS | 2) Y(MILLIJOUI | 2345 STOI | | | | PERCENT FI 2.78 (73) IN REF | JEL |

4-METHYL-1,3-PENTADIENE

| SYNONYMS. FORMULA= C&H10 | C/H= | 7.150 | MW= 82.14 | 7 VD= 2 | .8326 | |
|---|-----------------------|------------|---------------------------------------|-----------------------------|-------------------|---------|
| HEAT OF COMBUSTION OF LIQUID HEAT OF VAPORIZATI | IGROSS |) 9 | 12.00 | CAL/GRA 10462. 11102. | M REF 11 11 | |
| | | | | | | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX | 20 C | REF 11 | 25 C | KEF 11 | 30 C | 20 |
| REFRACTIVE INDEX | 1.451 | 11 | 1.448 | ii | 1.445 | 20 |
| SURFACE TENSION VISCOSITY (CS) | 21.52 | 20 | | | 20.32 | 20 |
| VAPOR PRESSURE (MM | | | | | 740 | |
| P 1 10 T -46.9 -17.5 | •3 | 40 | 23.7 | 400 | 76.3 | 20 |
| VAPOR PRESSURE EG A EQUATION 1 7.034 | | | | | | |
| EQUATION 1 7.034 | 8 -124 | 9.80 | 224.57 | | .01 | 30. |
| QUATION 2 79.68 | 31 -67 | 35.2 | -9.21 | 22.7066 | •13 | 3C • |
| | -34. | 5 1,3, | | | | |
| FLAMMABLE LIMITS VOL 1. | LOWER PER R 2 8 | E F | VOL | UPPER PER REI | F | |
| AUTOIGNITION TEMPE | | | | | | |
| DEG C DELAY(| SEC) R | t F | | G C REF | | |
| MAX FLAME VELICM/S | EC) FI | AME TE | MP(DEG K) | VOL (| PERCENT FI | JEL |
| | | STOIC | H REF | ABS MIN | N REF | |
| AIN IGN ENERGY(MIL | LIJOULE | | · · · · · · · · · · · · · · · · · · · | | | |

METHYLCYCLOPENTADIENE

SYNONYMS. FORMULA= C6H8 C/H= .894 MW= 152.704 VD= 5.2657 KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) POR PRESSURE(NM HG)-TEMPERATURE(DEG C) DATA
1 10 30 40 100 400 760 REF
72.8 3 VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA VAPOR PRESSURE EQUATION COEFFICIENTS D MAX ERR AT P A B C EQUATION 1 EQUATION 2 FLASH POINTIDES C) (CC) REF (OC) REF 49. 3 FLAMMABLE LIMITS LOWER UPPER VOL PER REF 1.3 AT 100 C 3 7.6 AT 100 C 3 AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF MAX FLAME VEL. (CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILL1JOULE) = QUENCHING DISTANCE(CM)=

2,3-DIMETHYL-1,3-BUTADIENE

| HEAT OF COMB | ustia | 1 | | KC | AL/MOLE | CAL/C | GRAM F | REF | |
|------------------------------|------------------------------------|-----------------|--------------------------------|------------|--|-------------------|--------|------|----------|
| F LIQUID | | 108 | NET) | | 855.90 908.50 | 1041 | 19. | 11 | |
| HEAT OF VAPO | | IONIZ | 25 C) | | | 1105 | 9. | 11 | |
| | | | | | 25 | C REF | 3(|) C | REF |
| DENSITY (GRA | M/ML) | .726 | 57 | 11 | .722 | 2 11 | • 1 | 7177 | 20 |
| REFRACTIVE I SURFACE TENS | NDEX | 1.43 | 394 | 11 | 1.43 | 62 11 | 1. | 4330 | 20 20 |
| ISCOSITY (C | \$1 | | | | | | | | |
| VAPOR PRESSU | RE(MM | HG}- | TEMP | ERATU | | DATA | | | |
| P 1 | | | | | | | | | |
| r -52.1 | - 6 3 • 6 | | 7.5 | | . 1 / • | | 00 | | 20 |
| VAPOR PRESS | | | | | | | | | |
| | | | | | C | | | | |
| | | | | | ~~ | | | | |
| QUATION 2 | 75.50 |)4 | -642 | 4.2 | | 17.6672 | | | 30. |
| EQUATION 2 | 75.50 |)4 | -642 | 4.2 | -8.60 | 17.6672 | : | .13 | 30. |
| EQUATION 2 FLASH POINT(| 75.50 DEG C) MITS VOL | LOW PER | -642 CC) | 4.2 REF | -8.60 | 17.6672 (OC) R | EF | .13 | 30. |
| EQUATION 2 FLASH POINT(| 75.50 DEG CI | LOW PER 2 | -642 CC) IER RE 8(| REF | -8.60 | 17.6672 (OC) R | RFF | .13 | 30. |

1,5-CYCLOOCTADIENE

| SYNONYMS. FORMULA# C8H12 | C/H= 7. | .944 MW | = 108.185 | V D= : | 3.7305 | |
|---|------------------|-----------|--------------|-----------------|------------|------|
| | | KCAL/ | MOLE | CAL/GR | M REF | |
| HEAT OF COMBUSTION | (NET) (GROSS) | | | | | |
| HEAT OF VAPORIZATI | | | | | | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | .8833 | 8 | 25 C .88Q | | | |
| VAPOR PRESSURE(MM P 1 10 | | ERATURE (| | TA 400 | | REF |
| T | | | | | 150.0 | 8 |
| VAPOR PRESSURE EQ | UATION CO | DEFFICIE | NTS C | D | MAX ERR | AT P |
| EQUATION 1 EQUATION 2 | | | | | | |
| FLASH POINT(DEG C) | (CC) 38. | | (00 | C) REF | | |
| | | | | | | |
| FLAMMABLE LIMITS VOL | LOWER Per ref | | | JPPER PER RE | F | |
| | | | | | | |
| AUTOIGNITION TEMPER DEG C DELAY(| | : | DEG | C REF | | |
| | | | | | | |
| MAX FLAME VEL (CM/S) | EC) FLA | ME TEMP | (DEG K) | AOL | PERCENT FL | JEL |
| MIN IGN ENERGY(MILI | | | REF | ABS MI | N REF | |

DICYCLOPENTADIENE

SYNONYMS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) 35 C REF DENSITY (GRAM/ML) .9302 2 REFRACTIVE INDEX 1.5050 2 SURFACE TENSION VISCOSITY (CS) ______ VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
P 1 10 30 40 100 400 760 REF
170.0 2 VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT (DEG C) (CC) REF (OC) REF 32. 3 FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C REF DEG C DELAY(SEC) REF 510. (22)(24)(B) MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIT REF MIN IGN ENERGY(MILLIJOULE)= QUENCHING DISTANCE(CM)=

ETHYNE

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SYNONYMS. ACETYLENE, ETHINE
FORMULA= C2H2 C/H= 11.916 MW= 26.038 VD= .8979
HEAT OF COMBUSTION KCAL/MOLE CAL/GRAM REF
OF GAS (NET) 300.10 11525. 11
(GROSS) 310.62 11929. 11
HEAT OF VAPORIZATION(25 C)
20 C REF -84 C REF
DENSITY (GRAM/ML) .6154 11
REFRACTIVE INDEX
SURFACE TENSION
                                       19.6
VISCOSITY (CS)
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
P 1 10 30 40 100 400 760 REF
T -153.3 -129.5 -120.1 -108.3 -84.0 20
VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P

EQUATION 1 1.5859 8.11 95.01 2697.49 1.

EQUATION 2 -258.375 4371.0 46.36 -54.7737 -4.04 30.
                                                                      30.
 ----------
FLASH POINT(DEG C) (CC) REF (OC) REF -18. 1
FLAMMABLE LIMITS LOWER UPPER

VOL PER REF VOL PER REF

2.5 1,3,4 81. 3,4

2.5 (8)(15) 80. 1,(8)(15)

2.5 12(A)
AUTOIGNITION TEMPERATURE
     DEG C DELAY(SEC) REF
335. 1
305. 5.8 26(AW)
296. 6.8 26(B,AV)
                                          DEG C REF
                                           300 3,4
MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 141. (73)

STOICH REF ABS MIN REF
MIN IGN ENERGY(MILLIJOULE) = .03 (7)(57)(E) .051 58
QUENCHING DISTANCE(CM) = .08 7
```

PROPYNE

| HEAT OF COME | | | KCA | I /MOLI | : | CAL/G | RAM | REF | |
|--|--------------------------|------------|--------|---------|------|-----------------------|-----|---------|-------|
| F GAS | (| NET) | 4 | 42.07 | | 1103 | 4. | 11 | |
| | (| GROSSI | 4 | 63.11 | | 1155 | 9. | 11 | |
| HEAT OF COME OF GAS HEAT OF VAPO | OR IZATION | (25 C) | | 4.07 | | 101. | 58 | 11 | |
| | | 3.2 C | | | | | | | |
| DENSITY (GRA | | | | | | | | | |
| REFRACTIVE | | | | | | | | | |
| SURFACE TENS | | | | | | | | | |
| VISCOSITY (C | .5) | | | | | | | | |
| VAPOR PRESSU | | | | | | | | | |
| P 1 T -110.6 | 10 | 30 | 40 |) | 100 | 400 | | 760 | REF |
| T -110.6 | -90.2 | -78.2 | | - (| 51.1 | | - | 23.2 | 20 |
| VAPOR PRESS | SUDE FOUR | TION C | DEFEIO | IENTS | | | | | |
| EQUATION 1 EQUATION 2 | A | В | 00 | C | | Ü | | MAX ERI | RATP |
| EQUATION 1 | 6.6594 | -764 | .00 | 225. | 32 | | | -2.4 | 5 30. |
| EQUATION 2 | 116.494 | -605 | 7.6 | -15.5 | 6 | 24.9191 | | -2.1 | 30. |
| | | | | | | | | | |
| FLASH POINT | DEG C) | (CC) | | | | OC) R | EF | | |
| | IMITS L | | REF | | () | OC) R UPPER PER | | | |
| FLASH POINT (FLAMMABLE LI AUTOIGNITION DEG C | IMITS L VOL PE 1.7 | OWER R REI | REF | | VOL | UPPER PER | | | |

1-BUTYNE

| | | | | | | 92 VD= | | |
|------------------------|--------|--------------------|--------|--------|-----------------|-------------|---------|---------|
| HEAT OF COMB | | / N.S. T. N | KC | AL/MC | LE | CAL/G | RAM REF | |
| F GAS | | | | | | | . 11 | |
| EAT OF VAPO | RIZATI | ON125 C |) | 4.9 | 8 | 92.0 | 6 11 | |
| | | 20 C | | | | REF | | |
| ENSITY (GRA | NDEX | .65 | 11(0 | D) | | | | |
| URFACE TENS | S) | | 20 | | 16.03 | 20 | | |
| APOR PRESSU | | | PERATU | KE (DE | G C) [| ATA | | |
| 1 | 10 | 30 | 4 | 0 | 100 | 400 | 760 | REF |
| -92.5 | -68.7 | | | | | -6.9 | | 21 |
| VAPOR PRESS | | | COEFFI | CIENT | S | | | |
| CHATION 1 | | | В | | | | MAX E | |
| QUATION 1 QUATION 2 | | | | | | | | 48 760. |
| | | | | | | | | |
| | | | | | , | OC) RE | r | |
| LAMMABLE LI | - | | | | | UPPER PER R | | |
| LAMMABLE LI | VOL | LOWER PER RI | | | v oL | UPPER | EF | |

2-BUTYNE

| | | | | | | | | | | /MOLE 4.57 | | | | | | | | |
|------------|------------|---------------------|----------------------|----------|----------------|-----|---------|---------|---------|---------------|-----|------|--------------|-----|------|-------|------|-------|
| UF GA | 3 | | | | | | | | | 6.13 | | | | | | | | |
| HEAT | OF V | AP(| | | | | C) | | | 5.47 | | | 101.1 | . 2 | 1 | 1 | | |
| | | | | | | | | RE | F | 25 | C | í | REF | | | | | _ |
| UENSI | TY | GRA | AM/P | (L) | .69 | 010 | | 11 | | .68 | 56 | | 11 | | | | | |
| SURFA | 1 | ÉNI | 2 U U I 2 U U I 2 | i A J | 17 | 4 | | 11 | 1160 | 1.3 | 073 | | 1.1 | | | | | |
| VISCO: | | | | | 111 | • | | • • | , , , , | , | | | | | | | | |
| | | | | | | | | | | IDEG C | | | | | | | | - |
| | | | | | | | | | | 10 | | | | | | | | |
| T -1 | 80.C |) - – – - | -54 | | | 39. | 0 | | | -18 | .7 | | | | 27.0 | | 20 |) |
| VAPOR | R PR | ES! | SURE | EQ | UAT | 100 | C | DEF | FICI | ENTS | | | | | | C D D | | |
| EOLLAT | LON | 1 | 7 | A 022 | | -10 | B | 54 | | C 233.88 | | l |) | | MAX | 21 | AI F | , |
| EQUAT | ION | 2 | 73 | .97 | 0 | -5 | 560 | 6,7 | | -8.58 | | 16.7 | 7574 | | | 28 | 30 |) . |
| | - - | | | | | | | | | | | | | | | | | - |
| FLASH | POI | NT (| IDEC | (C) | | | | | | | (| OC) | RE | F | | | | |
| | | | | | | 10. | | 1 | (AC) | | | | | | | | | |
| Flamm/ | ABL E | | | OL | L C PER | | Ref | | | | | | PER R | | *** | | | |
| FLAMM/ | GNIT | 101 | 1 TE | OL l. | LC PER 4 | WER | REF | | | | VOL | PEF | R R | EF | | | | |

1-PENTYNE

| HEAT OF COM | | | | AL/MOLE | | | REF | |
|---------------------------|--------------|----------------|--------|--------------|--------------|---|---------|---|
| OF GAS | | (NET) | | 735.95 | | 10804. | 11 | |
| | | (GROS) | 5) | 778.03 | | 11422. | 11 | |
| HEAT OF VAF | | | ∪ | 7.4 7 | | 90.01 | | |
| | | | | | | | 40 C | REF |
| DENSITY (GR REFRACTIVE | RAM/ML) | .6901 | 11 | .6 | 3 4 9 | 11 | | |
| SURFACE TEN | | | | | 0020 | | 16.94 | 20 |
| VISCOSITY (| | 1,031 | 20 | | | | 101/1 | |
| VAPOR PRESS | | | | JRE (DEG) | C) DAT | A | | |
| P 1 | 10 | 30 | 4 | 0 1 | 00 | 400 | | |
| 70.0 | | | | | | | 40.2 | |
| VAPOR PRES | SURE EC | DUATION | COEFFI | CIENTS | | | | |
| EQUATION 1 | A | | В | C | | D | MAX ERR | AT P |
| EQUATION 1 EQUATION 2 | 6.927 | 79 -10 | 73.59 | 224.9 |) : 21 | 4210 | 89 | 10. |
| | 70 4 71 | | | -11.7 | , JL | • | • • • • | |
| FLASH POINT | | | | | | | | |
| | (DEG C) | LOWER |) REF | | (OC |) REF | | · • • • • • • • • • • • • • • • • • • • |
| AUTOIGNITIO | IMITS VOL | LOWER PER F | REF | | VOL PI |) REF | | |

2-PENTYNE

| SYNONYMS. FORMULA= C5H8 | C/H= 7 | .448 Mh | = 68.12 | 0 VN= 2. | 3489 | |
|--|----------------------------|--------------|---------|------------------------------|-------------|-----------|
| HEAT OF COMBUSTION | (NET) | 732 | .25 | CAL/GRAM 10749. 11367. | 11 | |
| HEAT OF VAPORIZAT | ION(25 C) | 6 | .15 | | 11 | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX | 20 C | REF | 25 C | REF | | REF |
| SURFACE TENSION VISCOSITY (CS) | 21.84 | 20 | | | 19.27 | 20 |
| VAPOR PRESSURE (MM | | | | ATA | | |
| P 1 10 T -61.0 -32.8 | | | | | 760 56.1 | REF 20 |
| VAPOR PRESSURE E | QUATION C | 0EFF1C1E | NTS | | | |
| EQUATION 1 7.10 | 8 17 -1217 | a n 2 | C | D | MAX ERR | AT P |
| EQUATION 2 61.50 | 57 -563 | 9.9 | -6.53 | 7.0632 | 28 | 30. |
| FLASH POINTIDEG C | | | | | | |
| FLAMMABLE LIMITS VOL | LOWER PER RE | F | | UPPER PER REF | | |
| AUTOIGNITION TEMPE DEG C DELAY | - · · · - · · - | F | DE(| G C REF | | |
| MAX FLAME VEL(CM/S | | | | | | JEL |
| MIN IGN ENERGY(MIL QUENCHING DISTANCE | .LIJOULE): | STOICH | KEF | 3.3 ABS MIN | REF | |

1-HEXYNE

| SYNONYMS. FORMULA= C6H10 | C/H= 7 | .150 M | w= 82.14 | 7 VD= 2. | 8326 | |
|--|---------------------|-----------------------|------------------|--------------------|----------------------|------------|
| HEAT OF COMBUSTIO OF LIQUID | N (NET) | KCAL 87 | ./MOLE 7.20 | CAL/GRAM 10678. | REF 11 | |
| HEAT OF VAPORIZAT | (GROSS) | 92 | 19.80 | 11319. | 11 | |
| | 20 C | REF | 25 C | REF | | REF |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 1.3989 21.16 | 20 | | | 18.85 | |
| VAPOR PRESSURE(MM | | ERATURE | (DEG C) D | | | |
| P 1 10 T -52.2 -22.9 | -5.2 | | 18.2 | | 71.3 | 20 |
| VAPOR PRESSURE E | OUALTON C | DEFFICE | ENTS | | | AT P |
| A EQUATION 1 6.92 EQUATION 2 72.8 | 93 -1202 93 -627 | .48 8.1 | 225.73 -8.24 | 16.4378 | •18 -•02 | 10. 30. |
| FLASH POINT (DEG C | | | | | | |
| FLAMMABLE LIMITS VOL | | | | UPPER PER REF | | |
| AUTOIGNITION TEMP | | | DE | G C REF | | |
| MAX FLAME VEL(CM/S 48.5 (69) | SEC) FLA | AME TEM 2333 (| P(DEG K) 55) REF | | ERCENT FL 97 (69) | JEL |
| MIN IGN ENERGY(MII QUENCHING DISTANCI | LLIJOULE): | = | | AUJ III | | |

3-HEXYNE

| SYNONYMS. FORMULA= C6H10 | C/H= 7.150 MW: | | .8326 |
|---|-------------------------|----------------------------|--------------------|
| HEAT OF COMBUSTION OF LIGUID | N KCAL/ | 10LE CAL/GRA .00 10627. | 1.1 |
| HEAT OF VAPORIZAT | | | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 1.4113 11 | 25 C REF .7182 11 | |
| VAPOR PRESSURE (MM P 1 10 T | HG)-TEMPERATURE (| 100 400 | 760 REF 81.4 11 |
| VAPOR PRESSURE EC A ÉQUATION 1 EQUATION 2 | QUATION COEFFICIEN B | | MAX ERR AT P |
| FLASH FOINTIDEG C | (CC) REF | (OC) REF | |
| FLAMMABLE LIMITS VOL | LOWER PER REF | UPPER VOL PER RE | |
| AUTOIGNITION TEMPE DEG C DELAYE | | DEG C REF | |
| MAX FLAME VEL(CM/S 45.4 (69) | | | PERCENT FUEL |
| | 2101CH | REF ABS MI | N REF |

4-METHYL-1-PENTYNE

| SYNONYMS. FORMULA= C6H10 | C/H≂ 7.150 | MW= 82.14 | 7 VD= 2. | 8326 | |
|---|-----------------------------------|-----------------------|-----------|---------|----------|
| HEAT OF COMBUSTION | (NET) (GROSS) | CAL/MOLE | CAL/GRAM | N REF | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 20 C REF .7045 11 1.3930 11 | .7000 | REF 11 | | |
| VAPOR PRESSURE(MM P 1 10 T | | 0 100 | 400 | 61.1 | REF 2 |
| VAPOR PRESSURE EQ A EQUATION 1 EQUATION 2 | UATION COEFFI B | | D | MAX ERR | |
| FLASH POINT(DEG C) | | | | | |
| FLAMMABLE LIMITS VOL | LOWER PER REF | VOL | | | |
| AUTOIGNITION TEMPER DEG C DELAY(| | DEG | C REF | | |
| MAX FLAME VEL(CM/S) 45.0 (69) MIN IGN ENERGY(MIL) QUENCHING DISTANCE | 2344 STOI LIJOULE)= | EMP(DEG K) (7) CH REF | | | ∪EL |

4-METHYL-2-PENTYNE

SYNONYMS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) 20 C REF 25 C REF
DENSITY (GRAM/ML) .7157 11 .7112 11
REFRACTIVE INDEX 1.4057 11 1.4032 11 SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA 1 10 30 40 100 400 760 72.3 T 11 VAPOR PRESSURE EQUATION COEFFICIENTS MAX ERR AT P D EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF UPPER FLAMMABLE LIMITS LOWER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 2311 (62) 45.6 (62) STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE)= QUENCHING DISTANCE(CM)=

3,3-DIMETHYL-1-BUTYNE

| SYNONYMS. TERT- FORMULA= C6H10 | | ENE •150 MW= | 82.147 | /D= 2.8 | 3326 | |
|---|--------------------------|-----------------------|----------------|---------|-------------|-------|
| HEAT OF COMBUST | (GROSS) | | E C | · | REF | |
| DENSITY (GRAM/M REFRACTIVE INDE SURFACE TENSION VISCOSITY (CS) | X 1.3749 | REF 2 | | | | |
| VAPOR PRESSURE(P 1 1 T | 0 30 | | 100 4 | 00 | 760 39.5 | 2 |
| VAPOR PRESSURE EQUATION 1 EQUATION 2 | | | | | MAX ERR | |
| FLASH POINT(DEG | C) (CC) | REF | (00) | REF | | |
| FLAMMABLE LIMITS | S LOWER OL PER REI | | UPP VOL PER | | | ••••• |
| AUTOIGNITION TE | MPERATURE Ay(SEC) Rei | F | DEG C | REF | | |
| MAX FLAME VEL(CI 47.7 (63) MIN IGN ENERGY(I QUENCHING DISTAI | *(MILLIJOULE) | 2339 (7) Stoich re | | | | JEL |

I-HEPTYNE

| HEAT OF COME | OLIZOT | I (NET (GROSS LON(25 C | 10 10 10 | 280 85.92 | 10635. 11291. | 1 1 i 1 | |
|--|----------------------|---------------------------------|------------------------------|-------------------------------|--------------------|------------|--------------|
| DENSITY (GRA REFRACTIVE 1 SURFACE TENS VISCOSITY (C | M/ML) NDEX 10N | 20 C .7328 1.4087 | REF 11 11 | 25 C •7283 1•406 | REF 11 1 11 | | |
| VAPOR PRESSU 1 -38.0 | 10 | 30 | 40 | 100 39.6 | 400 | 99.7 | 20 |
| VAPOR PRESSEQUATION 1 | A 6.688 75.49 | 37 -121 92 -66 | COEFFIC B 7.30 73.2 | 1ENTS C 219.99 -8.63 | D | MAX ERR | AT P 100. |
| FLASH POINT(| MITS | L OWER | | | UPPER - PER REF | | |
| AUTCIGNITION DEG C | | | | D£ | EG C REF | | |
| MAX FLAME VE | L (C M / S | SEC) F | LAME TE | MP(DEG K) | VOL P | ERCENT FU | UE! |
| MIN IGN ENER QUENCHING DI | | | | (7)(57) | ABS MIN | REF | |

BENZENE

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SYNONYMS. BENZOL, PHENYL HYDRIDE, COAL NAPHTHA
FORMULA= C6H6 C/H= 11.916 MW= 78.115 VD= 2.6936
                     ______
HEAT OF COMBUSTION (NET)
                          KCAL/MOLE CAL/GRAM REF
OF LIQUID (NET) 749.42 9594. 11 (GROSS) 780.98 9998. 11 HEAT OF VAPORIZATION(25 C) 8.09 103.57 11
_____
20 C REF 25 C REF 37.78 C REF
DENSITY (GRAM/ML) .87901 11 .87370 11
REFRACTIVE INDEX 1.50112 11 1.49792 11
SURFACE TENSION 28.88 (8)(60) 28.18 11 VISCOSITY (CS) .736 (8)(60)
                                                           •5870 11
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
P 1 10 30 40 100 400 760 REF
T -36.7 -11.5 7.6 26.1 60.6 80.1 21
 VAPOR PRESSURE EQUATION COEFFICIENTS
A B C D MAX ERR AT P EQUATION 2 277.256 -15375.2 -38.83 119.9670 -4.80 40.
                                                                -5.51 40.
-4.80 40.
                        (CC) REF (OC) REF -11. 1.3.4 -11. 70(J)
FLASH POINT(DEG C)
FLAMMABLE LIMILS | OWER | UPPER | VOL PER | REF | VOL PER | REF | 1.46 | 75(Z) | 5.55 | 75(Z) | 1.41 | 75(X) | 7.45 | 75(X) | 1.4 | 1.4.12(A) | 8.0 | 1.4
                                              5.55 75(2)
                                                         75(X)
                                               8.0 1,4
7.1 3,6,12(A)
9.2 14(U)
6.75 52
                   1.4
            1.3 6 7.1 3,6,12(4
1.34 14(U) 9.2 14(U)
1.4 AT 100 C 3 6.75 52
1.3 AT 100 C (8)(15) 7.9 AT 100 C (8)(15)
AUTOIGNITION TEMPERATURE
                                            DEG C REF
563. 3,4
645. 50
      DEG C DELAY(SEC) REF
      538.
                           1
                            40(N)
      656.
                          (22)(23)(B) 740.
(22)(24)(B) 566.
49 580.
70 652.
     662.
                                                        (22)(23)
      690.
                                                        (22)(34)(8)
38
                42.
      592.
      724.
                                                         46
MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 44.6 (62)(P) 2362 (62) 2.94 (73)

STOICH REF ABS MIN REF
MIN IGN ENERGY(MILLIJOULE) = .79 56
QUENCHING DISTANCE(CM) = .28 7
                                                     •225 58
                                                        .18
```

TOLUENE

```
SYNONYMS. METHYLBENZENE, PHENYLMETHANE, TOLUOL
FORMULA = C7H8 C/H= 10.427 MW= 92.142 VD= 3.1773
 ------

        HEAT OF COMBUSTION
        KCAL/MOLE
        CAL/GRAM
        REF

        OF LIQUID
        (NET)
        892.42
        9685.
        11

        (GROSS)
        934.50
        10142.
        11

        HEAT OF VAPORIZATION(25 C)
        9.08
        98.54
        11

20 C REF 25 C REF 37.78 C REF DENSITY (GRAM/ML) .86696 11 .86231 11 REFRACTIVE INDEX 1.49693 11 1.49413 11 SURFACE TENSION 28.53 (8)(60) 27.92 11 VISCOSITY (CS) .675 (8)(60) .5584 11
                                                                                 .5584 11
-----
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
P 1 10 30 40 100 400 760 T -26.7 6.4 31.8 51.9 89.5 110.6
                                                                                              21
______
VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P

EQUATION 1 7.0925 -1422.11 227.17 .93 10.

EQUATION 2 55.208 -6226.1 -5.44 .4542 .31 400.
FLASH POINT (DEG C) (CC) REF (OC) REF 4.5 1,3,4,6 7. 4 7. 10(J)
FLAMMABLE LIMITS LOWER

VOL PER REF

1.2 AT 100 C (8)(15)

1.2 6 7.1 6

1.27 1,75(X) 7.0 1,4

1.3 4 6.7 3

1.4 3,12(A) 6.75 75(X)

1.28 75(7) 4.60 75(7)
                        1.2,
1.3 4
1.4 3,12(A)
1.28 75(Z)
                         1.28 75(Z)
0.91 14(U)
                                                              4.60 75(2)
                                                              7.4
                                                                          14(U)
AUTOIGNITION TEMPERATURE
                                    REF DEG C REF
1 536. 3,4
(22)(23)(B) 810. (22)(23)
(22)(24)(B) 516. (22)(35)(B)
38 540. (22)(30)
49 635. 50
       DEG C DELAY(SEC) REF
        552.
        552.
        640.
        552.
                                    38
                     48.
                                    49
       568.
                                    40(N)
                                                            629.
       633.
                                                                         46
MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 38.8 (62)(P) 2343 (62) 2.39 (73) STOICH REF A3S MIN REF
MIN IGN ENERGY (MILLIJOULE) =
QUENCHING DISTANCE(CM)=
```

ETHYLBENZENE

| | MBUSTION | | | | CAL/G | RAM REF | |
|------------|--------------|---------|--------------|--------|---------|-----------------|---------|
| OF LIQUID | MBUSTION | (NET) | 1038. | 43 | 978 | 1. 11 | |
| | ((| GROSSI | 1091 | 03 | 1027 | 6. 11 | |
| HEAT OF VA | PORIZATION | (25 C) | 10. | 10 | 95. | 13 11 | |
| | 20 | о с | REF | 25 C | REF | 37.78 C | REF |
| | RAM/ML) .8 | | | | | | |
| | INDEX 1. | | | | | | |
| SURFACE TE | NSION 29 | .04 | (8)(60) | 28.48 | 11 | | |
| VISCOSITY | (CS) · // | 80 | (8)(60) | | | .6428 | |
| | SURE (MM HG | | | | | | 0.55 |
| | | | | | | 760 | |
| -9.8 | 23.9 | | 72.0 | 74.1 | 113.0 | 136.2 | |
| VAPOR PRE | SSURE EQUA | TION CO | EFFICIEN | ITS | | - | |
| | A | B | 4.6 | C | D | MAX ERR 1.73 | AT P |
| EQUATION 1 | 7.2418 | -1596. | 68 23 | 10.21 | | 1.73 | 10. |
| EQUATION 2 | 39.371 | | | | 19.7328 | .57 | 10. |
| | T(DEG C) | (CC) | REF | ((| OC) RI | EF | |
| | | 15. | 3,4 | | | | |
| | | | | | 4. 4 | | |
| | | | | 22 | 2. 10 |)(L) | |
| | | | | | | | |
| ELAMMARIE | LIMITS LO | | | ***** | UPPER | | |
| CAMMADEC | VOL PER | REF | | VOL | PFR I | REE | |
| | .99 AT 100 | C (8) | (15) | 6.7 AT | 100 C | 8)(15) | |
| | 1.0 | 3,4 | ,12(A) | | | | |
| | | | | | | | |
| AUTOIGNITI | ON TEMPERAT | URF | ~~~~~ | | | | |
| | DELAYISE | | | DEC | G C RE | F | |
| 466. | | 1 | | | 2. 3 | | |
| 460. | 18. | 49 | | | 3. 40 | | |
| 477. | | 54(| AX) | | | | |
| 468. | 14. | 541 | B,AX) | | | | |
| | VEL (CM/SEC) | FLA | ME TEMP(| DEG K) | V01 | PERCENT FU | JEL |
| 1AX FLAME | | | - · · | | | | |
| 1AX FLAME | | | | | | | |

0-XYLENE

```
SYNONYMS. O-XYLOL. 1.2-DIMETHYLBENZENE, 2-XYLENE
FORMULA = C8H1C C/H= 9.533 MN= 106.169 VD= 3.6610
                 ______
                       KCAL/MOLE CAL/GRAM REF
HEAT OF COMBUSTION
OF LIQUID (NET) 1035.56 9754. 11
(GROSS) 1088.16 10249. 11
HEAT OF VAPORIZATION(25 C) 10.38 97.77 11
20 C REF 25 C REF 37.78 C REF DENSITY (GRAM/ML) .88020 11 .87596 11 REFRACTIVE INDEX 1.50545 11 1.50295 11
SURFACE FENSION 30.03 (8)(60) 29.84 11 VISCOSITY (CS) .917 (8)(60)
                                                        .740 11
VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA
P 1 10 30 40 100 400 760 REF
T -3.8 32.1 59.5 81.3 121.7 144.4 21
_____
VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P

EQUATION 1 7.1536 -1570.50 223.30 1.02 10.

EQUATION 2 55.649 -6834.1 -5.41 -.0015 -.39 40.
                                                          -.39 40.
______
                     (CC) REF (OC) REF
17. 3,4 46. (1,10)(L)
32. 6 24. 3
FLASH POINT (DEG C)
                     17. 3,4
32. 6
27.0 19(AY)
                                 UPPER
VOL PER REF
FLAMMABLE LIMITS LOWER
           VOL PER KEF VOL PER REF

1.1 AT 100 C (8)(15) 6.4 AT 100 C (8)(15)

1.0 3,4 6.0 3,4
                        1
                1.1
                                          7.0
AUTOIGNITION TEMPERATURE
     DEG C DELAY(SEC) REF
                                        DEG C REF
                  3,4
                                        551. 50
496. 38
     464.
                                                 50
              30.
     501.
                        49
                        46
     592.
MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 34.4 (62)(P) 2337 (62) 2.12 (73) STOICH REF ABS MIN REF
MIN IGN ENERGY(MILLIJOULE) =
```

QUENCHING DISTANCE (CM) =

M-XYLENE

| HEAT OF COMBUS | TION | KCAL/ | MOLE | CAL/GRA | M REF | |
|------------------------------------|--|---|---|-------------------------|---------------------|------|
| OF LIQUID | (N | ET) 1035 SS) 1087 | .32 | 9752 | 11 | |
| | (GRO | SS) 1087 | •92 | 10247. | . 11 | |
| HEAT OF VAPORI | ZATION(25 | C) 10 | .20 | 96.07 | ' 11 | |
| | | REF | 25 C | REF | | REF |
| DENSITY (GRAM/ | ML) .8641 | 7 11 | .85990 | 11 | | |
| REFRACTIVE IND SURFACE TENSIO | | | | | | |
| VISCOSITY (CS) | .712 | (8)(60) | 20.00 | 11 | .591 | 11 |
| VAPOR PRESSURE | (MM HG)-T | EMPERATURE (| DEG C) DAI | Λ | | |
| P 1 | | | | | 760 | REF |
| T -6.9 2 | 8.3 | 55.3 | 76.8 | 116.7 | 139.1 | 21 |
| VAPOR PRESSUR | | | | | | |
| | A | В | C | D | MAX ERR | AT P |
| EQUATION 1 7 | .0995 -1 | 516.53 2 | 20.48 | _ | .84 | 10. |
| EQUATION 1 7 EQUATION 2 6 | 2.117 - | 7061.7 | -6.37 | .0783 | 31 | 40. |
| | | . 1,3,4 | | | | |
| , | | | | | | |
| FLAMMABLE LIMI | TS LOWE | R | | IPPER | | |
| 1 | VOL PER | REF | VOL P | ER RE | F | |
| 1 | VOL PER AT 100 C | REF (8)(15) | VOL F | ER RE | 1(15) | |
| 1 | VOL PER AT 100 C | REF (8)(15) | VOL F | ER RE | 1(15) | |
| 1.5 | VOL PER AT 100 C | REF | VOL F | ER RE | 1(15) | |
| 1.1 | VOL PER AT 100 C 0.88 1.1 | REF (8)(15) 14(U) 1,3,4 | VOL F 6.4 AT 10 6.1 7.0 | PER RE 00 C (8 14 |)(15) (U) 3,4 | |
| 1.1 AUTOIGNITION TO | VOL PER AT 100 C 0.88 1.1 | REF (8)(15) 14(U) 1,3,4 | VOL F 6.4 AT 10 6.1 7.0 | C REF |)(15) (U) 3,4 | |
| 1.1 AUTOIGNITION TO DEG C DEG 528. | VOL PER AT 100 C 0.88 1.1 EMPERATURI | REF (8)(15) 14(U) 1,3,4 E REF 3,4 | VOL F 6.4 AT 10 6.1 7.0 DEG 652. | C REF |)(15) (U) 3,4 | |
| 1.1 A AUTOIGNITION TO DEG C DE | VOL PER AT 100 C 0.88 1.1 EMPERATURI | REF (8)(15) 14(U) 1,3,4 | VOL F 6.4 AT 10 6.1 7.0 | C REF |)(15) (U) 3,4 | |
| 1.1 AUTOIGNITION TO DEG C DEG 528. | VOL PER AT 100 C 0.88 1.1 EMPERATURI LAY(SEC) 54. | REF (8)(15) 14(U) 1,3,4 E REF 3,4 | VOL F 6.4 AT 10 6.1 7.0 DEG 652. 689. | C REF 50 46 |)(15) (U) 3,4 | JEL |

P-XYLENE

| SYNONYM FORMULA | = C8H | 10 | C/H= | 9.533 | MW= 10 | 6.169 | | | | |
|--------------------|-------------------|-------------------|-----------------------|---------------|-------------------|---------------------------------|------|-------------------------|------|------|
| HEAT OF | COMB | JSTION | I (NET | KC 1 | AL/MOLE 035.56 | С | 975 | RAM RE | 1 | |
| HEAT OF | VAPO | RIZATI | ON (25 C |) | 10.13 | | 95. | 41 | 11 | |
| DENSITY | | | 20 C | REF | 2 | 5 C | REF | 37.7 | | REF |
| REFRACT | | | | | | | | | | |
| SURFACE | TENS | ION | 28.31 | (8)(| 60) 27 | . 76 | 11 | | | |
| viscosi | TY (C | S) | .746 | (8) | 60) | | | .61 | 3 | 11 |
| VAPOR P | RESSU | RELMM | HG)-TEM | PERATU | RE (DEG | C) DATA | | | | |
| P 1 | | 10 | 30 | 54 | 0 1 | 00 (| 400 | 760 | b i | REF |
| T -8 | • L | | | | •4 / | | | 130.3 | · | |
| VAPOR | PRESSI | URE EQ | UATION | COEFFI | CIENTS | | | MAV | Epp | AT D |
| FOLIAT 10 | N 1 | 7.134 | 2 -154 | D D = 53 | 224.0 | n ' | J | MAX | - 92 | 10. |
| EQUATIO | N 2 | 56.67 | 5 -67 | 63.1 | -5.5 | 8 2.3 | 2325 | MAX | .31 | 10. |
| FLASH P | OINTI | DEG C) | 25. 27. | 3,4 | (9)(J) | 39.5 | R1 | EF (L) | | |
| FLAMMAB | LE L I | MITS VOL 1. | LOWER PER R 1 1 | | | UPI VOL PEI 7.0 AT 100 | | REF 1,3,4 (8)(15) | | |
| 529 | G C [9. 4. | | SEC) R 3 | EF ,4 9 | | DEG C 618. 657. | 40 | O(N) | | |
| MAX FLAM | ENERO | | LIJOULE | STOIC | EMP(DEG | | | PERCEN | | JEL |

N-PROPYLBENZENE

| SYNONYMS. 1- Formula= c9h | | | 8.937 | MW= 120 | .196 VD= | 4.1447 | |
|------------------------------|-----------|---------------|---------|-----------------|-----------------|---------|---------|
| HEAT OF COMB OF LIQUID | USTION | ٧ | KC | AL/MOLE | CAL/G | RAM REF | |
| OF LIQUID | | (NET |) 1 | 184.07 | 985 | 1. 11 | |
| | | | | | | 6. 11 | |
| HEAT OF VAPO | | | | | | | |
| | | 20 C | REF | 25 | C REF | 37.78 0 | REF |
| DENSITY (GRA | M/ML) | .86204 | 11 | .857 | 780 11 | | |
| REFRACTIVE I | NDEX | 1.49202 | 11 | 1.48 | 3951 11 | | |
| SURFACE TENS VISCOSITY (C | ION S) | 28.99 .992 | (8)(8 | 50) 28.4 50) | 11 | . 7944 | 11 |
| | | | | | | | |
| /APOR PRESSU P 1 | | | | | | 760 | RFF |
| 6.3 | | | | | | | |
| | | | | | | | |
| VAPOR PRESS | URE E | NOITAU | COEFFIC | LENTS | n | MAY EDD | AT D |
| EDILATION 1 | 7 157 | 73 -162 | 1.66 | 220.22 | U | MAX ERR | 10 |
| EQUATION 1 EQUATION 2 | 53.18 | 30 -69 | 91.2 | -5.00 | -7.9504 | .43 | 10. |
| LASH POINT | | | | | | | |
| | | 30. | 1,3, | , 4 | 39. 1 | 9(K) | |
| FLAMMABLE LI | VOL | | EF | | UPPER OL PER | | |
| AUTOIGNITION DEG C 1 | | SEC) R | EF | | DEG C RI | EF | |
| MAX FLAME VEI | | | STOIC | | | | UEL |

ISOPROPYLBENZENE

| OF LIQUID | KCAL/M (NET) 1183. | MOLE CAL/GR .40 9846 | AM REF • 11 |
|--|----------------------------|--|----------------------|
| HEAT OF VAPORIZATION | GROSS) 1246 | .52 10371 | • 11 |
| | O C REF | 25 C REF | |
| DENSITY (GRAM/ML) .8 | | | |
| REFRACTIVE INDEX 1. SURFACE TENSION 26 | | | |
| VISCOSITY (CS) .9 | (8)(60) | 27.00 | .740 11 |
| /APOR PRESSURE(MM HO | G)-TEMPERATURE(C | DEG C) DATA | ******* |
| P 1 10 | | | |
| T 2.9 38.3 | 66.1 | 88.1 129.2 | 152.4 21 |
| VAPOR PRESSURE EQUA | | | |
| A | β | C D | MAX ERR AT P |
| EQUATION 1 6.9254 EQUATION 2 84.946 | -1453.49 20 -8416.2 - | -9.69 27.9321 | •18 40• •32 40• |
| FLASH POINT(DEG C) | (CC) REF | | 2 |
| | | 46. 10 | |
| FLAMMABLE LIMITS L VOL PE .88 AT 100 | OWER R REF C (8)(15) | UPPER VOL PER RI 6.5 AT 100 C (1 | EF B)(15) 4(U) |
| | C) REF | ĐEG C REI | |
| 467. 6. | 49 | 424. 3,4 | |

1-METHYL-2-ETHYLBENZENE

| | BUSTION | 44 | KCAL/M | OLE | CAL/GRAM | 1 REF | |
|---------------------------|-----------------|---------|-----------|-----------|----------------|---------|-------|
| OF LIQUID | | (NET) | 1182. | 14 | 9835. | 11 | |
| WEAT OF MAD |)) | GROSS) | 1245. | 26 | 94.85 | 11 | |
| HEAT OF VAP | | | | | 94.00 | | |
| | 20 | C P | REF | 25 C | REF | | |
| DENSITY (GR REFRACTIVE | AM/ML) .88 | 3069 1 | 1 | .87657 | 11 | | |
| REFRACTIVE | INDEX 1.9 | 0456 | 1 | 1.50208 | 11 | | |
| SURFACE YEN | SION 30. CS) | .20 (| 8)(60) | 29.66 | 11 | | |
| VAPOR PRESS | | -TEMPER | ATURE (D) | FG C) DA1 | · | | |
| P 1 | 10 | 30 | 40 | 100 | 400 | 760 | REF |
| 7 9.4 | 47.6 | | 76.4 | 99.0 | 141.4 | 165.1 | 21 |
| VAPOR PRES | SURF FOUAT | ION COP | FFICIEN | TS | | | |
| EQUATION 1 | A | В | (| C | D | MAX ERR | AT P |
| EQUATION 1 | 7.2928 | -1735.2 | 20 22 | 8.46 | | 1.67 | 10. |
| EQUATION 2 | 38.901 | -6358. | .0 - | 2.91 -22 | .0280 | .66 | 400 - |
| FLASH POINT | (DEG C) | (CC) | | (00 |) REF | | |
| FLAMMABLE L | VOL PER | | | VOL P | PPER ER REF | | |
| | , | | | | | | |
| | | LIRE | | | | | |
| AUTOIGNITIO | | | | | | | |
| DEG C | DELAYISEC |) REF | | DEG | C REF | | |
| | DELAYISEC | | | DEG | C REF | | |

1-METHYL-3-ETHYLBENZENE

| | SUSTION | | KCAL/F | 10LE | CAL/GRAM | REF | |
|------------------------------|---------|--|--------------|----------|------------------|---------|---------|
| 0110017 40 | | | | .59 | | | |
| | | | | 71 | | | |
| HEAT OF VAPO | RIZATI | ON(25 C) | 11. | . 21 | 93.26 | 11 | |
| | | | | 25 C | | | |
| DENSITY (GRA | | | | | | | |
| REFRACTIVE 1 | | | | | | | |
| SURFACE TENS VISCOSITY (C | | | (8)(80) | 20.02 | 11 | | |
| VAPOR PRESSU | DRE(MM | HG)-TEMP | ERATURE (D | EG C) DA | TA | | |
| P 1 | 10 | 30 | 40 | 100 | 400 | 760 | REF |
| 7.2 | 44.7 | | 73.3 | 95.9 | 137.8 | 161.3 | 21 |
| VAPOR PRESS | URE EQ | UATION C | DEFFICIEN | its | | | |
| | A | 8 | | C | D | MAX ERR | AT P |
| EQUATION 1 | 7.224 | 6 -1676 | .48 22 | 4.81 | | .95 | 10. |
| EQUATION 2 | 51.35 | | 6.3 - | | 3.1771 | •26 | 10. |
| FLASH POINT | DEG C) | (CC) | | (0 (| C) REF | | |
| | | | | | | | |
| FLAMMABLE LI | VOL | | F | VOL I | JPPER PER REF | | |
| | VOL 8 | PER REI 8 8(1 | = DD) | | PER REF | | |
| | VOL 8 | PER REI 8 8(1 RATURE SEC) REI 49 | E DD) | DEG | PER REF | | JEL |

1-METHYL-4-ETHYLBENZENE

| SYNONYMS. P-ETHYLTOL FORMULA= C9H12 C | | 120.196 VD= | 4.1447 | |
|--|---|-----------------------------------|---------|--------|
| HEAT OF COMBUSTION OF LIQUID | (NET) KCAL/M (NET) 1181. GROSS) 1244. | OLE CAL/GR 33 9828 45 10354 | . 11 | |
| DENSITY (GRAM/ML) .8 REFRACTIVE INDEX 1. SURFACE TENSION 28 | 49500 11 | .85702 11 1.49244 11 | 37.78 C | REF |
| VISCOSITY (CS) .8 | | | .671 | 11 |
| VAPOR PRESSURE(MM HG P 1 10 T 7.6 44.9 | 30 40 | 100 400 | | |
| VAPOR PRESSURE EQUA A EQUATION 1 7.2217 EQUATION 2 32.921 | 8 -1668.22 223 | D 3.35 2.00 -42.4741 | -3.95 | 400. |
| FLASH POINT(DEG C) | | (OC) RE | F | |
| | OWER R REF 8(DD) | UPPER VOL PER R | EF | |
| AUTOIGNITION TEMPERA DEG C DELAY(SE 483. 12. | TURE C) REF 49 | DEG C RE | F | |
| MAX FLAME VEL(CM/SEC MIN IGN ENERGY(MILLIA QUENCHING DISTANCE(C) | STOICH R | | | EL |

1.2.3-TRIMETHYLBENZENE

| HEAT OF COMB | LISTION | | KCAL | MOLE | CALZO | AM RFI | - |
|---|---|------------------|------------|--------------|--------------|----------------|--------|
| FLIQUID | 037107 | (NET) | 1179 | 0.24 | 9811 | 1. | l |
| EAT OF VAPO |)) RIZATION | GROSS) (25 C) | 1242 | 36 73 | 10336 | 5. 13 59 13 | l l |
| DENSITY (GRA REFRACTIVE 19 BURFACE TENS /ISCOSITY (C | M/ML) NDEX ION S) | | REF | 25 C | | | |
| APOR PRESSUI | RE(MM HG 10 55.9 |)-TEMPE 30 | 40 85.4 | 100 108.8 | 400 152.0 | 176.1 | 21 |
| VAPOR PRESSI | IDE ENLLA | TION CO | CEEICIE | ALT C | | | |
| EQUATION 1 EQUATION 2 | 7.3201 | -1794. | 28 2 | 28.26 | D 0 3534 | MAX E | 34 10. |
| | | -0111 | • 1 | -2004 -1 | | | 10. |
| FLASH POINT(| | | · | -3.09 -1 | | | |
| LASH POINT(| DEG C) | (CC) | REF | (0 | C) RE | F | |
| LASH POINT() LAMMABLE LIV | DEG C) MITS LO VOL PER TEMPERATOELAY(SEO | (CC) WER REF | REF | (0 | UPPER PER A | EF | |
| FLAMMABLE LI | MITS LOVOL PER | URE (CC) | REF | VOL | UPPER PER A | EF | |

1,2,4-TRIMETHYLBENZENE

| | | | | | | | 4.1447 | |
|---------------------------------|--|--------------------------------------|--------------------------------|-----------|--------------|---|---------------------|---------|
| HEAT OF COM OF LIQUID | BUSTION | 1 | | KCAL/M | 0'.E | CAL/GF | RAM REF | |
| OF LIQUID | | (N | E11 | 1178. | 46 | 9804 | . 11 | |
| UCAT OF MAD | | | | | | | 11 | |
| HEAT OF VAP | | | | 11. | 40 | | | |
| | | 20 C | REI | F | 25 C | REF | 30 C | REF |
| DENSITY (GR. | AM/ML) | .8758 | 2 11 | | .87180 | 11 | | |
| REFRACTIVE | INDEX | 1.504 | 84 11 | | 1.50237 | 7 11 | | |
| SURFACE TEN | SION | 29.71 | (8) | (60) | 29.19 | 11 | 28.67 | 19 |
| VISCOSITY (| CS) | 1.151 | (8) | (60) | | | •936 | 19 |
| VAPOR PRESS | URE (MM | HG)-T | EMPERA | TURE (DI | EG C) DA | ATA | | |
| P 1 | 10 | 3 | 0 | 40 | 100 | 400 | 760 | REF |
| T 13.6 | 50.7 | | | 79.8 | 102.8 | 145.4 | 760 169.2 | 21 |
| | | | | | | | | |
| THEOR PRES | A | TOTAL EDI | R | TOTEIN | r | n | MAY FDD | AT D |
| FOLIATION 1 | 7,030 | 1 -1 | 576.45 | 21 | 0.66 | U | | 10 |
| EQUATION 2 | 81.64 | 3 - | 8537.A | 21 | 9.17 3 | 4.7733 | MAX ERR 37 34 | 10. |
| | | | | | | | ~~~~~~~ | |
| PLASH PUINT | IDEG CI | 10 | L/ N | : F | | | | |
| | | 46 | .0 1 | 9(AY) | 54 | .5 (8 | F)(9)(L) | |
| | | | | | 54 | UPPER | | |
| FLAMMABLE L | IMITS VOL | L OWES | | | | UPPER | | |
| FLAMMABLE L | IMITS VOL .8 | LOWES PER 88 | REF 8(DD) | | VOL | UPPER PER R | EF | |
| FLAMMABLE L AUTOIGNITION DEG C | IMITS VOL .8 TEMPE DELAY(| LOWES PER 18 | REF 8(DD) | | VOL | UPPER PER R | EF | |
| FLAMMABLE L | IMITS VOL .8 | LOWES PER 18 | REF 8(DD) | | VOL | UPPER PER R | EF | |
| AUTOIGNITION DEG C 521. | IMITS VOL .8 N TEMPE DELAY(24. | LOWES PER 8 | REF 8(DD) E REF 49 | | VOL DEG 528 | UPPER PER R | F | |
| AUTOIGNITION DEG C 521. | IMITS VOL N TEMPE DELAY(24. | LOWES PER 18 | REF 8(DD) E REF 49 | TEMP((| VOL DEG 528 | UPPER PER PER PER PER PER PER PER PER PER | PERCENT F | JEL |
| AUTOIGNITION DEG C 521. | IMITS VOL .8 N TEMPE DELAY(24. | LOWES PER 18 | REF 8(DD) E REF 49 | TEMP ([| VOL DEG 528 | UPPER PER R | PERCENT FO | JEL |
| AUTOIGNITION DEG C 521. | IMITS VOL 8 N TEMPE DELAY(24 EL (CM/S | LOWES PER 88 RATURI SEC) | REF 8(DD) E REF 49 | TEMP ([| VOL DEG 528 | UPPER PER R | PERCENT F | JEL |

1.3.5-TRIMETHYLBENZENE

| | LAME | | | | | | | | | | | | | | |
|----------------|------------------------|------------------|-----------------------|------------|------------------|-----------------|-----------|-----|--------------|-------------|-----------|-------------|----------------|-----|-----------|
| | GNIII DEG C 559. | - | TEMPE ELAY(48. | SEC |) { | REF 49 50 | | | *** | DEG 621 | | REF 40() | () | | |
| | | | VOL | PER | 1 | REF 8(DD | | | | VOL | PER | REI | : | | |
| F1 AMM | ABLE | | | | | | | | | | UPPE | | | | |
| | POIN | | | , | 100 | | REF | | | |)C) | REF | | | |
| EQUAT EQUAT | ION 1 ION 2 | | 7.232 49.92 | ? 7 ? 5 | -16 ⁶ | 91.9 895. | 4 2 | 22 | 4.28 4.52 | - | -6.61 | 80 | | .16 | 10. |
| VAPO | R PRE | 55111 | ₹F FC | I ALI | ION | COF | FFIC | IEN | T C | | | | | | |
| r | PRES 1 9.6 | | 10 47.4 | | 30 | | 40 76. | 1 | 10 98 | 0 | 40 141 | 0 | 760 164•7 | , | REF 21 |
| SURFA VISCO | CE TE | NSI ((CS |) | 28. | 83 | | 8)(6 | | | | | | | | |
| DENSI REFRA | TY (G CTIVE | RAM, INI | /ML) DEX | 1.4 | 518 993 | 7 1 | 1 | | .86 | 111 9684 | 11 | • | | | |
| | | | | | | | | | | | | | | | |
| | 05.44 | | | (0 | ROS | S) | 12 | 41. | 07 19 | | 10 | 326. | M RE 1 1 | 11 | |

N-BUTYLBENZENE

| | | | | | | 4.6284 | |
|---------------------------------------|------------------------|----------------|------------------|---------------|--------|--------------------|------|
| HEAT OF COMB | | | | OLE | CAL/G | RAM REF | |
| OF LIQUID | | (NET) | 1329. | 82 | 990 | 8. 11 | |
| | | GROSS) | 1403. | 46 | 1045 | 5. 11 | |
| HEAT OF VAPO | ORIZATION | (25 C) | 11. | 98 | 89.2 | 25 11 | |
| | 2 | 0 C | REF | 25 C | REF | 37.78 C | REF |
| DENSITY (GRA | M/ML) .8 | 6013 | 11 | .85607 | 11 | | |
| REFRACTIVE I | INUEX I. | 40919 | 11 | 1.40/42 | 11 | | |
| SURFACE TENS VISCOSITY (C | SION 29 | 200 | (8)(60) | | | .947 | 11 |
| | | | | | | | |
| VAPOR PRESSU P 1 | 10 | 30 | 40 | 100 | 400 | 760 | REF |
| 7 22.7 | 62.0 | - • | 92.4 | 116.2 | 159.2 | 183.1 | 21 |
| VAPOR PRESS | | | | | | | |
| FOUATION 1 | 7.4428 | -1891. | .26 23 | 1.43 | J | 59 | 10- |
| EQUATION 2 | 57.871 | -7576 | 5.2 - | 5.67 24 | 2707 | 56 | 400. |
| FLASH POINT(| | | REF | | 0.0 | : F | |
| | | | | | , ,,, | | |
| | | 57.0 | 19(AY) | 71. | (i | F L,3,4,10)(L) | |
| | | | | | | | |
| FLAMMABLE LI AUTOIGNITION DEG C 438. | MITS L VOL PE .8 | OWER R REF 3,4 | | VOL PE 5.8 | PPER F | REF 3,4,(8)(15) | |
| FLAMMABLE LI AUTOIGNITION DEG C 438. | TEMPERADELAY(SEC | OWER R REF 3,4 | ME TEMP(2327 (62 | DEG (412. | PPER A | REF 3,4,(8)(15) | |

I SOBUTYL BENZ ENE

| HEAT OF COMP | | | | MAL C | CALICUI | M DEE | |
|------------------------------|-----------------|---------------|-----------|-------------|---------|---------|------|
| HEAT OF COMB OF LIQUID | 021104 | (NET) | 1331 | -20 | 9918 | M KEF | |
| | | (GROSS) | 1404 | .84 | 10466. | 11 | |
| HEAT OF VAPO | | N(25 C) | 11 | . 82 | 88.06 | | |
| | | 20 C | REF | 25 C | REF | 30 C | REF |
| DENSITY (GRA | | | | | | | |
| REFRACTIVE I | | | | 1.48400 | 11 | | |
| SURFACE TENS VISCOSITY (C | | | 19 | | | 27.18 | |
| VAPOR PRESSU | RE(MM H | G)-TEMP1 | ERATURE (| | | | |
| P 1 | | | | | | | |
| 14.1 | 53.7 | | 83.3 | | | | |
| VAPOR PRESS | URE EQU | ATION C | DEFFICIE | NTS | | | |
| EQUATION 1 | A | В | | С | D | MAX ERR | AT P |
| EQUATION 1 | 7.5952 | -1972 | .70 2 | 45.60 | | -1.08 | 40. |
| EQUATION 2 | 38.798 | -6379 | 9.4 | -2.93 | 1250 | -1.04 | 40. |
| FLASH POINT(| DEG C) | 52. | | 60. | | | |
| FLAMMABLE LI | MITS | LOWER | | ر ا ا | JPPER | | |
| | | | | 6.0 | | | |
| AUTOIGNIIION | | | | | | | |
| DEG C (| DELAY(SI 12. | EC) REF 49 | • | DEG 428. | | | |
| 470. | 12. | 77 | | 420 | . 113 | •• | |
| | | | | | | | |

SEC-BUTYLBENZENE

| OF LI | OF CO | MBUST10 | N (N | ET) | KCAL/MOLE 1331.30 1404.94 | C | AL/GRAI 9919. | REF | |
|-------|-----------------------|---------------|---------|---------------------------|---------------------------------|------------|------------------|-------------------|--------|
| | | | (GRO | SSI | 1404.94 | | 10467. | 11 | |
| HEAT | OF VA | PORIZAT | ION(25 | C) | 11.83 | | 88.14 | 11 | |
| | | | 20 C | RE | F 0 2 | 95 C | RFF | 30 C | REF |
| DENSI | TY (G | RAM/ML) | .8620 | 7 11 | . 6 | 35797 | 11 | .85387 1.48539 | 19 |
| REFRA | CTIVE | INDEX | 1.490 | 20 11 | 1. | 48779 | 11 | 1.48539 | 19 |
| | | NSION (CS) | 29.46 | 19 | | | | 28.35 | 19 |
| | PRES | | HG)-T | EMPERA | TURE (DEG | C) DATA | | | |
| | | | | | | | | 760 | REF |
| T | 18.6 | 57.0 | | | | | | 173.5 | |
| VAPO | R PRE | SSURE E | QUATIO | V COEFI | FICIENTS | | | | |
| | | A | | В | C | | D | MAX ERR 1.24 | AT P |
| EQUAT | ION 1 | 7.60 | 89 -1 | 932.89 | 235.4 | 4 | | 1.24 | 100. |
| EQUAT | ION 2 | 51.2 | | | -4.6 | | | 1.25 | |
| FLASH | POIN | TIDEG C | | | | | | | |
| | | | 49 | . 4 | EF | 63. | (1,4 | .10)(L) | |
| | | | 52 | . 3 | | 49. | 19(K | () | |
| | | | | | | | | | |
| FLAMM | ABLE | LIMITS | | | | UP | | | |
| | | AOL | PER | REF | | | | : | |
| | | • | 8 | 3,4 | | 5.8 | | | |
| | | | | | | 6.9 | 3 | | |
| | | | | | | | | | |
| | | | | _ | | | | | |
| | | ON TEMPI | | | | חבר ר | Det | | |
| | DEG C | ON TEMPI | | REF | | DEG C | | (30) | |
| | DEG C 418. | DELAY | (SEC) | REF 3,4 | | DEG C | | (30) | |
| | DEG C 418. | | (SEC) | REF | | | | (30) | |
| | DEG C 418. 447. | DELAY 18 | (SEC) | REF 3,4 49 | TEMP(NEG | 443. | (22) | | |
| | DEG C 418. 447. | DELAY 18 | (SEC) | REF 3,4 49 FLAME | TEMP(DEG | 443. K) | (22) VOL P | ERCENT FU | EL |

T-BUTYLBENZENE

| HEAT OF | CUMBUST | 10N | | KCA | L/MOLE | CAL | /GRAM | REF | | |
|---------------------|----------------------------------|---------------------------------|----------------------------|-----------------|---------------|---|-----------------------|--------|----|---------|
| OF LIQUI | บ | | (NET) | 132 | 28.80 | 9 | 900. | 11 | | |
| | | | | | | 10 | | | | |
| HEAT OF | VAPOR 1 Z | ALION | (25 6) | | 11.73 | | 7.39 | 11 | | |
| | | 2 | о с | REF | 25 | C RE | F | 30 C | , | REF |
| DENSITY | (GRAM/M | L) .8 | 6650 | 11 | .86 | 240 11 | | -858 | 26 | 19 |
| | | | | | | 9024 11 | | | | |
| SURFACE VISCOSIT | | | •07 | 19 | | | | 28.9 | 14 | 19 |
| VAPOR PR | ES S UR E (| MM HG |)-TEMP | ERATURI | EIDEG C |) DATA | | | | ~~~~ |
| P 1 | | | | | | | | 760 | | REF |
| T 13. | 0 51 | .7 | | 80.1 | 8 103 | -8 145 | .8 | 168.5 | | 21 |
| VAPOR P | RESSURE | EQUA | TION C | OEFFIC | LENTS | | | | | |
| EQUATION | | A | 1000 | | C | D | | MAX E | RR | AT P |
| EQUATION | 2 66 | 2281 | -1408 | • 64 | 239.50 | | 22 | • | 60 | 10. |
| EQUALIUN | _ | . 767 | -000 | 7• 7 | | 0.43 | 62 | • | 00 | 10. |
| FLASH PO | INTIDEG | C) | (CC) | REE | | (00) | 0.55 | | | |
| | | | | 112 | | 1007 | KEF | | | |
| | | | 46.0 | 19(A) | Y) | 60. | (1,3 | ,10)(L | .) | |
| FLAMMABL | E LIMIT V .7 A | S L OL PE T 100 | 46.0 | 19(A) | Y) 5.7 | UPPE VOL PER AT 100 C 5.6 | (1,3 R REF 3 | ,10)(L | | |
| AUTOIGNI | .7 A .7 A TION TE C DEL | S L OL PE T 100 .8 | OWER R RE C 3 4 TURE C) RE | 19(A) | y) 5.7 | OF C | R REF 3 4 | ,10)(L | | |
| AUTOIGNI | .7 A TION TE C DEL | S L OL PE T 100 .8 | WER REIC 3 | 19(A) | y) 5.7 | 60. UPPE VOL PER AT 100 C 5.6 | R REF | ,10)(L | | |

1-METHYL-3-N-PROPYLBENZENE

| FORMULA= C1 | UH 14 | t/H= 8 | | MW= 134.22. | 3 VU≖ | 4.0234 | |
|----------------------------------|------------|--------------------|--------|------------------------|----------------|---------|------|
| | | | KCA | L/MOLE | CAL/GR | AM REF | |
| HEAT OF COM | BUSTIO | N (NET) (GROSS) | | | | | |
| HEAT OF VAP | ORIZAT | | | | | | |
| | | 20 C | REF | 25 C | | 30 C | |
| DENSITY (GR | AM/ML) | .8609 | 11 | .8569 | 11 | .8530 | 19 |
| REFRACTIVE | INDEX | 1.4935 | 11 | 1.4911 | 11 | 1.4887 | 19 |
| SURFACE TENS VISCOSITY (| | | 19 | | | 28.23 | 19 |
| VAPOR PRESS | JRE (MM | HG)-TEMP | ERATUR | E(DEG C) DA | ATA | | |
| P 1 | 10 | 30 | 40 | 100 | 400 | 760 | REF |
| Y 23.1 | 61.4 | 84.3 | | 114.2 | | 181.8 | 19 |
| VAPOR PRESSEQUATION 1 EQUATION 2 | SURE E | QUATION C | | | | | |
| | A | В | | C | D | MAX ERR | AT P |
| EQUATION 1 | 7.139 | 7 -1673 | •99 | 211.34 | | 57 | 100. |
| EQUATION 2 | 67.38 | 32 -815 | 8.3 | -7.00 | 8.3990 | .07 | 30. |
| FLASH POINT | DEG C | (CC) 56.0 | Ret | ((| OC) RE | F | |
| FLAMMABLE L | | | | V 0L | UPPER PER R | EF | |
| AUTOIGNITION DEG C | | | F | DEG | C RE | | |
| MAX FLAME VE | EL (CM/ S | SEC) FL | | MP(DEG K) H REF | VOL ABS M | | JEL |
| MIN IGN ENER QUENCHING D | | | | , KLI | M COM | IN NEF | |

1-METHYL-4-N-PROPYLBENZENE

MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM) =

| FORMU | LA= C1 | 01114 | TOLUENE C/H= 8 | | 4W= 134.22 | 3 VD= | 4.6284 | |
|--------|---------|-----------|-------------------|-----------|------------|---------|-----------------|------|
| | | | | | /MOLE | CAL/GR | AM REF | |
| HEAT | OF COM | BUSTIO | N (NET) | | | | | |
| | | | (GROSS) | | | | | |
| HEAT | OF VAP | OPIZAT | ION(25 C) | | | | | |
| | | | 20 C | RFF | 25 C | RFF | 30 C | RFF |
| DENSI | TY IGR | AM/ML) | .8584 | 11 | .8544 | 11 | .8504 | 19 |
| REFRA | CTIVE | INDEX | 1.4922 | 11 | 1.4898 | 11 | .8504 1.4870 | 19 |
| SURFA | CE TEN | SION | 28.96 | 19 | | | 27.89 | 19 |
| VADOD | DDESS | ID C (MM | HC 1 - TEMP | ED A TUDE | (DEG C) D | A T A | | |
| | | | | | | | 760 | REF |
| T | 23.3 | 61.9 | 84.9 | | 115.1 | | 183.3 | 19 |
| | | | | | | | | |
| VAPO | R PRES | SURE | DUATION C | OFFEICI | ENTS | | MAY EDD | 47.0 |
| FOLIAT | TON 1 | 7 12: | 8 1677 - 1677 | 00 | 212 12 | U | MAX ERR .63 | AI P |
| FOUAT | ION 2 | 65.70 | 33 -805 | 8.2 | -6.77 | 7.3356 | 12 | 30. |
| | | | | | | | | |
| FLASH | POINT | IDEG C | (CC) 57.0 | | () | OC) REI | | |
| | | | | | | | | |
| FLAMM | IABLE [| VOL | LOWER PER RE | F | VOL | PER RE | F | |
| | | | | | | | | |
| AUTOI | GNITION | TEMPS | RATURE | | | | | |
| 40.01 | | | SEC) RE | Ę. | DEC | C REF | : | |
| | | | | | | | | |
| MAX F | LAME VE | L (CM/S | EC) FL | AME TEM | IP(DEG K) | VOL | PERCENT FU | EL |
| | CN CNES | | | | REF | ABS MI | N REF | |

1-METHYL-2-ISOPROPYLBENZENE

| | BUSTION | | KCAL | /MOLE 9.00 2.64 | CAL/GRAI | REF | |
|-----------------------|------------------------------------|-----------------------------------|--------------|-----------------------|----------|-----------|---------|
| OF LIQUID | | (NET) | 132 | 9.00 | 9901. | 11 | |
| HEAT OF VAP | ORIZATIO | (GROSS) | 140 | 2.64 | 90.15 | 11 | |
| | | | | 25 C | | | DE E |
| DENSITY (GRA | AM/MI) . | 8766 | 11 | .8726 | 11 | .8530 | 19 |
| REFRACTIVE | INDEX 1 | .5005 | 11 | 1.4983 | 11 | 1.4881 | 19 |
| SURFACE TENS | SION 2 | 9.31 | 19 | | | 28.23 | 19 |
| VISCOSITY (| CS) | | | 1.0210 | 19 | | |
| VAPOR PRESSI | URE (MM H | G)-TEMPI | ERATURE | (DEG C) DA | TA | .+ | |
| P 1 | 10 | 30 | 40 | 100 | 400 | 760 | REF |
| T 19.1 | 57.3 | 80.2 | | 110.2 | | 178.2 | 19 |
| VAPOR PRES | SUPE EN | ATTON C | SEELCI | ENTS | | | |
| EQUATION 1 | A | 8 | | С | D | MAX ERR | AT P |
| EQUATION 1 | 7.0761 | -1638 | .06 | 212.37 | | 51 | 100. |
| EQUATION 2 | 67.605 | -801 | 5.9 | -7.08 | 1.3318 | •05 | 30. |
| | | 53.0 | 19(AY |) | | | |
| FLAMMABLE LI | | | | | UPPER | | • |
| FLAMMABLE L | VOL P | | : | V 0L | | | |
| | VOL P | ER REF 8([| : | | | ~~~~~ | |
| AUTOIGNITION | VOL P | ER REF 8([| =)D) | V 0L | | | |
| FLAMMABLE LE | VOL P .8 | ER REF | = DD) | V OL | PER REF | | JEL |
| AUTOIGNITION DEG C | VOL P .8 | ER REF | = (DD) | VOL DEG | PER REF | ERCENT FL | JEL |
| AUTOIGNITION DEG C | VOL P .8 N TEMPER DELAY(S | ER REF 8(E ATURE EC) REF | ME TEM | VOL DEG | PER REF | ERCENT FL | JEL |

1-METHYL-3-ISOPROPYLBENZENE

| HEAT OF LI | 0 40 11 UQ 1 | OMBI | USTI | 0N (| (NET) GROSSI | KC/ 11 | AL/MOLE 328.40 402.04 | | 9897. | AM REF 11 11 5 11 | |
|---------------|-----------------|---------------|----------|------|--------------------|-------------|-----------------------------|--------|-------------------|----------------------------|------|
| HEAT | 0F \ | APO | RIZA | TION | (25 C) | - | 11.94 | | 88.96 | ii | |
| | | | | 2 | 0.0 | REE | 26 | 5 (| DEE | 30 C | QEE |
| DENSI | ITY (| GRA | M/ML | . 8 | 610 | 11 | - 8 | 570 | 11 | .8530 1.4881 28.23 | 19 |
| REFRA | ACTIV | E II | NDEX | 1. | 4929 | 11 | 1.4 | 4905 | 11 | 1.4881 | 19 |
| SURFA | ACE I | ENS LC | ION | 29 | .31 | 19 | 1.0 | 0210 | 19 | 28.23 | 19 |
| | | | | | | | | | | | |
| VAPOR | R PRE | SSUF | RE(M | M HG |)-TEMP | ERATUF | RE(DEG (| C) DAT | ` A 400 | 760 | DEE |
| T | 17.1 | | 55. | 0 | 50 | 84 | 3 10 | 7.6 | 150.9 | 175.1 | 21 |
| | | | | | | | | | | | |
| VAPO | JK PH | (F22) | JKE A | EUUA | IION C | .UEFF1(| CIENTS | | D | MAX ERR | AT P |
| EQUAT | TION | 1 | 7.0 | 534 | -1613 | . 81 | 211.68 | 3 | • | .44 | 10. |
| EQUAT | ION | 2 | 72. | 279 | -818 | 4.5 | -7.7 | 7 19 | .3165 | 13 | 40. |
| FLASI | 1 POI | NT (1 | DEG | C) | | REF 19() | AY) | (00 |) REF | | |
| FLAMM | ABL E | LIM | V0 | L PE | OWER R RE 8(| F | | VOL P | PPER ER RE | F | |
| AUTOI | | | _ | | TURE C) RE | F | | DEG | C REF | | |
| | | * | | | | ***** | | | | PERCENT FU | |

1-METHYL-4-ISOPROPYLBENZENE

| HEAT OF COMBUSTION | KCAL/M | IOLE | CAL/GRAM | REF | |
|--|---------------|-----------|-----------|----------|------|
| OF LIQUID (N | ET) 1328. | 40 | 9897. | 11 | |
| (GRO | | | | | |
| HEAT OF VAPORIZATION (25 | C) 12. | | | | |
| 20 C | REF | 25 C | REF | 30 C | REF |
| DENSITY (GRAM/ML) .8573 | 11 | .8533 | 11 | .8493 | 19 |
| REFRACTIVE INDEX 1.490 | 9 11 | 1.4885 | 11 | 27.74 | 19 |
| SURFACE TENSION 28.61 VISCOSITY (CS) | | .9296 | | 21.14 | 14 |
| VAPOR PRESSURE(MM HG)-T | EMPERATURE (D | FG C) DAT | Δ | | |
| P 1 10 3 | | | | 760 | REF |
| T 17.3 57.0 | | | | | |
| VAPOR PRESSURE EQUATION | N COEFFICIEN | its | | | |
| A | В | C. | D | MAX ERR | AT P |
| EQUATION 1 7.5681 -19 EQUATION 2 40.187 - | 968.06 24 | 2.73 | | 61 | 40. |
| EQUATION 2 40.187 - | 6533.9 - | 3.12 4 | .1575 | 57 | 40. |
| FLASH POINT(DEG C) (C | | | | | |
| | 1,3,4 | | 4 | | |
| 53 | . 3(AD) | | | | |
| | | | | | |
| FLAMMABLE LIMITS LOWER | ₹ | U | PPER | | |
| VOL PER | REF | VOL P | ER REF | | |
| .7 AT 100 C | 1,3,4 | 5.6 | 3(A | 01,4 | |
| .85 | (8)(15) | 5.5 | (8) | (15) | |
| | | | | | |
| AUTOIGNITION TEMPERATURI DEG C DELAY(SEC) | | DEC | C DEE | | |
| DEG C DELAY(SEC) | 1 | 445. | | | |
| 436. | 3,4 | 466. | | | |
| 445. | (22)(42) | | , = , , , | | |
| | | | | | |
| MAX FLAME VEL(CM/SEC) | FLAME TEMP(| DEG K) | YOL PE | RCENT FU | EL |
| HAN FEMME VECTOM/SEC/ | 7.74 | | | | |

1.2-DIETHYLBENZENE

| SYNONYMS. Formula= C10H14 | C/H= 8.512 | MW= 134.2 | .23 VU= 4 | .6284 | |
|---|------------------|------------------|-------------------|--------------|-----------|
| | KCA | AL/MOLE | CAL/GRA | M REF | |
| HEAT OF COMBUSTION | (NET) (GROSS) | | | | |
| HEAT OF VAPORIZATIO | | 12.61 | 93.95 | 11 | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | | | | | |
| VAPOR PRESSUREIMM | G)-TEMPERATUR | | | | |
| P 1 10 10 22.3 62.0 | 30 40 |) 100 5 116-2 | 400 159-0 | 760 183-5 | REF 21 |
| | | | | | |
| VAPOR PRESSURE EQU | JATION COEFFIC | CIENTS | D | MAY FRR | AT P |
| A EQUATION 1 7.5085 EQUATION 2 41.026 | -1940.84 | 236.18 | U | -1.11 | 400. |
| QUATION 2 41.020 | -6733.6 | -3.21 | -3.7928 | 79 | 400. |
| FLASH POINT(DEG C) | | | | | |
| FLAMMABLE LIMITS VOL F | LOWER PER REF | vo | UPPER L PER RE | F | |
| AUTOIGNITION TEMPER DEG C DELAY(S | | | EG C REF | | |
| MAX FLAME VEL(CM/SE | | | VOL (| | JEL |
| MIN IGN ENERGY(MILL QUENCHING DISTANCE(| IJOULE)= | | | | |

1.3-DIETHYLBENZENE

| | | | VCAL /I | MOLE | CAL /CDAN | DEE | |
|--------------|----------|------------------|------------|------------|------------------|------------|--------|
| HEAT OF COMB | USTION | (NET) | KCAL/I | 1066 | CALIGNAL | , KLI | |
| | | (GROSS) | | | | | |
| EAT OF VAPO | | ON(25 C) | | . 55 | 93.50 | 11 | |
| | | | | 25 C | REF | 3C C | REF |
| ENSITY (GRA | M/ML) | .86394 | 11 | .85993 | 11 | .85590 | 19 |
| EFRACTIVE I | | | | 1.49310 | 11 | | |
| URFACE TENS | - | 29.71 | 19 | | | 28.62 | 19 |
| APOR PRESSU | | | FRATURE (1 | DEG C.) DA | Ta | | |
| 1 | | | | | | 760 | REF |
| 20.7 | | | 90.4 | 114.4 | 156.9 | 181.1 | |
| VAPOR PRESS | URE EQI | UATION C | | NTS | | | |
| | A | В | | C | D | MAX ERR | AT P |
| QUATION 1 | 7.456 | 5 -1899 | •58 23 | 34.10 | | 1.34 | 100. |
| QUATION 2 | | | | | 7.3957 | -1.36 | 400. |
| LASH POINT(| | | | | C) REF | | |
| | | | l(AF) | | | | |
| | | | 19(AY) | | | | |
| | | 56. | 3,4 | | | | |
| | | | | | | | |
| LAMMABLE LI | | LUWEK PER REI | | | UPPER Per ref | | |
| | | | | | | | |
| | | | | | | ******* | |
| UTOIGNITION | | | - | 256 | C 055 | | |
| 455. | | SEC) REI 49 | | | C REF 3,1(| | |
| | | , , | | , 30, | - J 7 & 1 | • | |
| | | | AME TEMP! | DEG KI | VOI P | ERCENT FIL | FL |
| AX FLAME VE | L (CM/SE | C) FL | ant tenri | JE 0 11.7 | ,,,, | ENGENT TO | |

1.4-DIETHYLBENZENE

| | | | | | | KCAL/ | OLE | CAL/G | RAM REF | |
|----------|-------|-------|---------|--------------------|-------------|--------|--------------|--------|------------------|------|
| HEAT | OF (| COMBI | ISTION | I (NET) (GRO: | | | | | | |
| HEAT | OF V | VAPO | RIZATI | | - | 12. | . 54 | 93. | 43 11 | |
| | | | | 20 C | RE | F | 25 C | REF | 30 C | REF |
| DENS | ITY | GRA | 4/ML } | .86196 | 5 11 | | .85794 | 11 | .85390 | 19 |
| CLIPE | ACE | LENC. | ION | 29.44 | 10 | | 1.49243 | 11 | 1.48987 28.36 | |
| | OSITY | | | 27044 | | | | | 20.50 | 4.7 |
| | | | | | | | DEG C) DA | | | |
| - | 1 | , | 10 | 3(|) | 40 | 100 | 400 | 760 | REF |
| ! | 20. | , | 00.3 | | | | | | 183.8 | |
| | | | | OITAU | COEF | FICIEN | ITS | | | |
| E OLIVA | TION | 1 | 7 30 F | 14 _16 | B 221 25 | 22 | 0 00 | Ð | MAX ERR | AIP |
| QUA. | TION | 2 | 54.48 | 9 - | 7307.0 | - | -5.21 1 | 6.8382 | 72 | 400. |
| | | | | 100 |) R | EF | (0 (| | F | |
| | | | | 55 | 5 1 | (AF) | | | | |
| | | | | | 5 3 | | | | | |
| | | | | 70 (| , , | • • | | | | |
| | | | | | | | | | | |
| FLAM | MABLE | LIM | ITS | LOWER | DEE | | VOL I | |) F F | |
| | | | VUL | FER | NLI | | VOL 1 | LK I | \ C1 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| UTO | | | | RATURE | | | 050 | | - = | |
| | | - | | SECI | | | | C RE | 4,1(AF) | |
| | . , . | | | | • | | 4300 | , ,, | regerner | |
| | | | | | | | DE0 *** | | 0500515 | |
| IAX I | LAME | VEL | . CCM/S | EC) | FLAME | TEMP (| DEG K) | AOL | . PERCENT FU | EL |
| | | | | | | | | | | |

1.2-DIMETHYL-3-ETHYLBENZENE

| LEAT OF COME | | | T \ | KC | AL/M(| DLE | CAL/GI | RAM REF | |
|-----------------------|---------------|------|------------|--------|--------|--------|--------------|-------------|------|
| HEAT OF COME | אט ז ז ז כ טנ | – | 055) | | | | | | |
| HEAT OF VAPO | RIZATI | | | | 13.1 | 11 | 97. | 67 11 | |
| | | | | | | | | | |
| | | 20 | C | REF | | 25 C | REF | 30 C | REF |
| DENSITY (GRA | M/ML) | .892 | 1 | 11 | | .8881 | 11 | .8841 | |
| REFRACTIVE I | NDEX | 1.51 | 17 | 11 | | 1.5095 | 11 | | _ |
| SURFACE TENS | | 33.1 | 8 | 19 | | | | 32.58 | 19 |
| | | | | | | | | | |
| APOR PRESSU | | | | | _ | | | | |
| P 1 | | | | | | | | | |
| 31.7 | | | | | | | | 193.9 | _ |
| VAPOR PRESS | | | | | | | | | |
| | | on | | | | | D | MAX ERR | AT P |
| EQUATION 1 | | | | | | | | | 100. |
| QUATION 2 | | | | | -6 | 85 | 8.1452 | .01 | 10. |
| FLASH POINT | | | CC) | | | | OC) RE | : 5 | |
| EAST FORTH | JCG 0, | | - | 19(4 | | • | <i>(()</i> | • | |
| FLAMMABLE LI | - | | | | | | UPPER | | |
| | VOL | PEK | RE! | F | | VUL | PER F | KC r | |
| AUTOIGNITION DEG C | | | | F | | 0.5 | G C RE | F | |
| | | | | | | | | | |
| | | | | | | | | | |
| MAX FLAME VE | L (CM/S | EC) | FL | AME TE | MP (D | EG K) | VOL | PERCENT FL | JEL |
| IAX FLAME VE | L (CM/S | EC) | FL | AME TE | | EG K) | VOL ABS M | | JEL |
| IAX FLAME VE | GY(MIL | LIJO | ULE): | STOIC | | | | | JEL |

1,2-DIMETHYL-4-ETHYLBENZENE

| SYNONYMS. 4- FORMULA= C10 | | | | MH= 134.2 | 23 VD= 4 | .6284 | |
|---|----------------------------------|--------------------|-----------------------|------------------------|-------------------|----------------------------------|----------|
| HEAT OF COME | | NET) | | L/MOLE | CAL/GRA | M REF | |
| HEAT OF VAPO | | GROSS) | 1 | 12.89 | 96.03 | 11 | |
| DENSITY (GRAREFRACTIVE) SURFACE TENS VISCOSITY (| AM/ML) .8 INDEX 1. SION 31 | 0 C 745 5031 | REF 11 11 | 25 C .8706 1.500 | REF 11 9 11 | 30 C .8667 1.4983 30.09 | 19 19 |
| VAPOR PRESSI P 1 T 28.9 | 10 | 30 | 40 | 100 121.4 | 400 | 189.7 | 19 |
| VAPOR PRESSEQUATION 1 EQUATION 2 | A 7.1754 68.817 | -1719 -839 | 0EFF1C1 .65 5.8 | LENTS C 210.74 | D | MAX ERR | AT P |
| FLASH POINT | | | REF | (| (OC) REF | | |
| FLAMMABLE LI | IMITS L VOL PE | OWER R REF | : | vo: | UPPER PER RE | - | |
| AUTOIGNITION DEG C | TEMPERA DELAY(SE | | : | DE | G C REF | | |
| MAX FLAME VE | L (CM/SEC |) FLA | | | | | VEL |
| MIN IGN ENER QUENCHING DI | | | STOICH | I REF | ABS MI | N REF | |

1.3-DIMETHYL-2-ETHYLBENZENE

| | | | | MW= 134.223 | | | |
|--------------------|--------------|-------------------|-------------|-------------|---------------------|---------|------|
| SAT OF COM | DUCT LON | INCT | KCA | L/MOLE | CAL/GRA | M REF | |
| EAT OF COM | RO2110M | (GROSS) | | | | | |
| EAT OF VAP | ORIZATI | | | 12.88 | 95.96 | 11 | |
| | | | | 25 C | | 20.6 | 056 |
| ENSITY ICR | AM/ML) | | | -8864 | | | |
| EFRACTIVE | | | | | | | |
| URFACE TEN | SION | 33.52 | 19 | 2.7007 | | 32.33 | |
| ISCOSITY (| | | | | | | |
| APOR PRESSI | | HG1-TEMP | FRATUR | E(DEG C) DA | TA | | |
| | | | | 100 | | 760 | REF |
| 28.9 | | | | | | 190.0 | 19 |
| ~~~~~ | | | | | | | |
| VAPOR PRES | | | OEFFIC | | 0 | MAX ERR | AT D |
| QUATION 1 | | | | | U | 53 | |
| QUATION 2 | | | | | 8.5466 | | |
| | | | | | | | |
| LASH POINT | (DEG C) | | REF 19(A | | C) REF | | |
| LI AMMADIE I | | LOWER PER RE | | | UPPER PER RE | F | |
| LANNADLE L | VOL | | | | | | |
| AUT 01 GN 1 T 1 01 | N TEMPER | RATURE SEC) RE | F | DEG | | | |

1,3-DIMETHYL-5-ETHYLBENZENE

| | UL A = | : C10H | 14 | =H\3 | 8.5 | 12 | MW= 13 | 34.22 | 3 VD= | 4. | 6284 | |
|--------|----------|--------|-------|-------------|--------------|-------|--------|-------|--------------|-------|--------------------------|------|
| | | | | | | KCA | L/MOLE | | CAL/ | GRAM | REF | |
| 1E A T | 0F | COMBU | STION | N (NET |) | | | | | | | |
| | | | | (GRO | | | | | | | | |
| HEAT | OF | VAPOR | IZAT | ION (25 | C) | | 12.52 | | 93 | . 28 | 11 | |
| | | | | | | | | | | | 30 C | REF |
| ENS | ITY | (GRAM | /ML) | .8648 | 1 | 1 | . 8 | 8008 | 11 | | .8568 | 19 |
| REFR | ACT | VE IN | DEX | 1.498 | 1 1 | 1 | 1. | 4958 | 11 | | .8568 1.4931 28.74 | 19 |
| URF | ACE | TENSI | ON | 29.83 | _ | 9 | | | | | 28.74 | 19 |
| | | Y ICS | | | | | | | | | | • |
| | | | | HG)-T | | ATIID | | C) 0 | ATA | | | |
| | | | | | | | | | | | 760 | DEE |
| | | | | | | | | | | | | |
| | | , | | | • · · | | | | | | 183.7 | |
| VAP | OK F | PRESSU | REE | OITAU | N COE | FFIC | IENTS | | 0 | | MAY EDD | AT 0 |
| | T 1 0 4 | | 7 100 | 04 - 1 | 711 7 | 7 | 212 7 | | U | | MAX ERR | 100 |
| AUU | 1100 | 1 2 | 44 31 | 10 -I | 111. | 7 | -4 5 | E | 4 440 | 0 | 54 | 100. |
| QUA | 1100 | | 07.51 | - | 0033 | , | -0.5 | | 0.070 | o | .01 | |
| | | | |) {C | | REF | | | OC) | | | |
| LAM | Mabl | E LIM | ! | LOWE PER | R REF | | | | UPPER PER | | | |
| | | | | ERATUR | | | | | | | •~~- | ~~~~ |

MAX FLAME VEL (CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL

STOICH REF ABS MIN REF

MIN IGN ENERGY(MILLIJOULE)= QUENCHING DISTANCE(CM)=

1,4-DIMETHYL-2-ETHYLBENZENE

| | | | | MW= 134.22 L/MOLE | | | |
|---------------------------|-----------------------|----------|---------|--------------------------|---------|---------|-------------|
| EAT OF COM | BUSTION | | NUA | LIMOLE | CALTURA | n NLI | |
| | | (GROSS) | | 12.50 | 02.71 | | |
| HEAT OF VAP | | 4125 C) | | | 43.12 | 11 | |
| | | 20 C | REF | 25 C | REF | 30 C | REF |
| DENSITY (GR REFRACTIVE | AM/ML) . | 3772 | 11 | .8732 | 11 | .8692 | 19 |
| REFRACTIVE SURFACE TEN | INDEX I | 5043 | 11 | 1.5020 | 11 | 30.44 | 19 |
| ISCOSITY (| | 1.50 | 19 | | | 30.44 | 19 |
| APOR PRESS | URE(MM H | G)-TEMP(| ERATURI | (DEG C) D | ATA | | |
| 1 | 10 | 30 | 40 | 100 | 400 | 760 | REF |
| 25.9 | 64.9 | 88.1 | | 118.5 | | 186.9 | 19 |
| VAPOR PRES | SURE EQU | ATION CO | DEEF C | IENTS | | | |
| EQUATION 1 EQUATION 2 | A | В | | С | D | MAX ERR | AT P |
| EQUATION 1 | 7.1787 | -1723 | .09 | 214-10 | 2 2070 | .64 | 10. |
| EQUATION 2 | 01.888 | - 1439 | 7.Y | -0.20 | 3.3879 | | 30 . |
| FLASH POINT | | | REF | ((| OC) REF | | |
| FLAMMABLE L | | | | | UPPER | | |
| | VOL PE | ER REF | | VOL | PER REF | : | |
| AUTOIGNITIO: DEG C | N TEMPERA DELAY(SE | | | DEC | G C REF | | |
| | | | | | | | |

2.4-DIMETHYL-1-ETHYLBENZENE

| SYNONYMS. 1,3- | DIME THYL - 4- | -ETHYLBI | ENZENE. | 4-ETH | YL-M- | XYLENE |
|----------------|----------------|----------|---------|-------|-------|--------|
| FORMULA= C10H1 | 4 C/H= | 8.512 | MW= 134 | .223 | VD= | 4.6284 |

| HEAT | OF | Cú | MBU | ıs | T I C | N | { N | ET) | | K | CAL | /M | OLE | | CAL | /GRAI | M R | E F | | |
|----------------|--------|---------|-------|-----|--------------|----|--------|-----------|-----|-----|-----|-----|------|-----|------|-------|------|------|----|-----|
| HEAT | 0F | V A | POR | 1 | ZAT | 1 | | ROS 25 | | | 1 | 2. | 74 | | 9 | 4.92 | | 11 | | |
| | | | | | | | | | | | | | | | | | 30 | | | REF |
| DENS | ITY | 10 | RAM | 1/1 | HL) | ١, | . 87 | 63 | | 11 | | | .872 | 23 | 11 | | - 8 | 683 | | 19 |
| EFR | ACT | IVE | - IN | O | EX | | 1.5 | 037 | | 11 | | | 1.50 | 115 | 11 | | 1. | 4990 | | 19 |
| SURFA / ISC | | | | | V | | 31. | 45 | | 19 | | | | | | | 30 | . 31 | | 19 |
| | , | ' ' | | · | | _ | | | | | | | | | | | | | | |
| APOF | R PI | RES | SUR | E | MM | 1 | 4G) - | -TEI | MPE | RAT | URE | (D | EG C | D | ATA | | | | | |
|) | 1 | | | | 10 | | | 30 | | | 40 | | 100 |) | 40 | 0 | 760 | | R | EF |
| | 27 | • 5 | | 6 | 5 • 5 | | | 89. | 7 | | | | 120. | 0 | | | 188. | 4 | | 19 |
| VAPO | OR I | PRE | SSU | IRI | E E | QI | JAT | ON | CC | EFF | 101 | EN | TS | | | | | | | |
| | | | | | A | | | | В | | | | C | | D | | MAX | ERR | AT | P |
| QUAT | r tigh | ¥ 1 | | 7 | . 18 | 7 | ٠ . | -17 | 27. | 73 | | 21 | 2.85 | | | | | .64 | | 10. |
| QUAT | 101 | V 2 | ? | 6 | 3.4 | 3 | l | -80 | 77 | 1.1 | | - | 6.41 | | 4.24 | 21 | | 09 | | 30. |
| LASH | 1 P | 110 | IT (D | E | s c | ì | | | | | | | | 10 | OC) | REF | | | | |
| | | | | | | | - 1 | 51. | | 19 | LAY | 1 | | | | | | | | |

UPPER FLAMMABLE LIMITS LOWER VOL PER REF VOL PER REF

AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF

MAX FLAME VEL (CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL

STOICH REF ABS MIN REF

MIN IGN ENERGY(MILLIJOULE)= QUENCHING DISTANCE(CM)=

1, 2, 3, 4-TETRAMETHYLBENZENE

| FURMULA= C10 | H14 | C/H= | 8.512 | MW= 134 | •223 VD= | 4.6284 | |
|------------------------------|-----------|----------------|-------------|-----------|-------------------|-----------|-----------------|
| AFAT OF COMP | | 4N.C.T.) | KC | AL/MOLE | CAL/G | RAM REF | |
| HEAT OF COMB | DZIION | (GROSS | : 1 | | | | |
| HEAT OF VAPO | RIZATI | ON(25 C |) | 13.66 | 101. | 77 11 | |
| | | 20 C | | 25 | C REF | 30 C | RFF |
| DENSITY (GRA | M/ML) | | | | | | |
| DENSITY (GRA REFRACTIVE I | NDEX | 1.5203 | 11 | 1.5 | 181 11 | 1.5155 | 19 |
| SURFACE TENS VISCOSITY (C | ION S) | 35.81 | 19 | | | 34.65 | 19 |
| APOR PRESSU | | | | | DATA | | |
| P 1 | | | | | | | |
| 7 42.6 | | | | | | | 21 |
| VAPOR PRESS | | | | | | | |
| | | | В | | D | MAX ERR | AT P |
| EQUATION 1 | | | | | | -1.28 | |
| EQUATION 2 | | | | -10.16 | 29.4292 | | 40. |
| FLASH POINT(| DEG C) | | REF 19() | | (OC) R | EF | |
| FLAMMABLE LI | | LOWER PER R | | ' | UPPER /OI. PER | REF | |
| AUTOIGNITION DEG C | | | EF | | DEG C RI | | |
| MAX FLAME VE | L(CM/S | EC) F | LAME TI | EMP(DEG # | () VOI | PERCENT F | U EL |

1.2.3.5-TETRAMETHYLBENZENE

| SYNONYMS. ISODURENE FGRMULA= C10H14 C | /H= 8.512 M | W= 134.223 | VD= 4 | .6284 | |
|--|--|---------------------------------|------------------|--------------|---------------------|
| HEAT OF COMBUSTION (| KCAL | /MOLE | CAL/GRA | M REF | |
| HEAT OF VAPORIZATION | | | | | |
| DENSITY (GRAM/ML) .8 REFRACTIVE INDEX 1. SURFACE TENSION 33 VISCOSITY (CS) | 0 C REF 903 11 5130 11 •51 19 | | | | |
| VAPOR PRESSURE(MM HG P 1 10 T 40.6 77.8 | 30 40 105.8 | (DEG C) DA 100 128.3 | 400 173.7 | 760 197.9 | REF 21 |
| VAPUR PRESSURE EQUA A EQUATION 1 6.6524 EQUATION 2 121.444 | TION COEFFICI B -1369.46 -11747.3 | ENTS C 165.13 -14.61 1 | D 9.3454 | | AT P 10. 400. |
| FLASH POINT(DEG C) | | 10 | C) REF | | |
| FLAMMABLE LIMITS L VOL PE | OWER R REF | VOL | UPPER PER REI | : | |
| AUTOIGNITION TEMPERA DEG C DELAY(SE | | DEG | C REF | | |
| MAX FLAME VEL(CM/SEC | | P(DEG K) | | PERCENT FU | EL |
| MIN IGN ENERGY(MILLI QUENCHING DISTANCE(C | JOULE) = | REF | ABS MIN | I REF | |

1.2.4,5-TETRAMETHYLBENZENE

| SYNONYMS. DUREN FORMULA= C10H14 | | 8.512 MW= | 134.223 | VD= 4. | 6284 | |
|------------------------------------|------------|---------------|----------|----------|-----------|------|
| TEAT OF COMBUST | ION (NET) | KCAL/P | IOLE | CAL/GRAM | REF | |
| | (GROSS | | | | | |
| HEAT OF VAPORIZ | ATION(25 C | 13. | 27 | 98.87 | 11 | |
| DENSITY (GRAM/M | 20 C | REF | 25 C | REF | 30 C | REF |
| DENSITY (GRAM/M | L) .8875 | 11(1) | 1 5003 | 11(1) | 1 5073 | 19 |
| REFRACTIVE INDE SURFACE TENSION | | | 1.5075 | 11117 | 31.97 | 19 |
| ISCOSITY (CS) | | 17 | | | 34471 | |
| APOR PRESSURE | MM HG)-TEM | PERATURE (D | EG C) DA | TA | | |
| 1 1 | 0 30 | 40 | 100 | 400 | 760 | REF |
| r 45.0 74 | .6 | 104.2 | 128.1 | 172.1 | 195.9 | 21 |
| VAPOR PRESSURE | EQUATION | COEFFICIEN | TS | | | |
| GUATION 1 5. | A | B | C | D | MAX ERR | AT P |
| GUATION 1 5. | 6948 -85 | 6.92 10 | 0.04 45 | 2 0057 | -11.21 | 10. |
| QUATION 2 434 | -312 -200 | 71.0 -0 | 0.00 45 | 3.9051 | -13.75 | 400. |
| FLASH POINT(DEG | | REF 19(AY) | | C) REF | | |
| LAMMABLE LIMIT V | | | | UPPER | | |
| AUTOIGNITION TE DEG C DEL | | | DEG | C REF | | |
| MAX FLAME VEL(C | m/sec) | LAME TEMP(| DEG K) | VOL P | ERCENT FL | JEL |
| IIN IGN ENERGY(| | STOICH)= | REF | ABS MIN | REF | |

N-PENTYL BENZENE

| | | | KC | AL/MOLE | CAL/GR | AM REF | |
|---------------------------------|------------------------|----------------|----------------|------------|----------------|---------------|---------|
| EAT OF COMB | 10112U | N (NET) | | | | | |
| OF WARD | | (GROSS | | | | | |
| HEAT OF VAPO | KIZALI | | .) | | | | |
| | | 20 C | REF | 25 C | REF | 30 C | REF |
| DENSITY (GRA | | | | | | | |
| REFRACTIVE I | NDEX | 1.4878 | 11 | 1.4830 | | | |
| SURFACE TENS | | 29.41 | 19 | 28.35 | 19 | | |
| | | | | | | | |
| APOR PRESSU | | | | | | | |
| | | | | 0 100 | | | |
| 40.7 | 80.6 | 104.3 |) | 157.4 | | 205.4 | 19 |
| VAPOR PRESS | | | | | | | |
| | | | В | | D | | |
| EQUATION 1 | | | | | | | 10. |
| QUATION 2 | 71.25 | >1 -86 | 393 . 4 | | 9.2062 | 08 | 30. |
| FLASH POINT | DEG C | (CC | REF | ((| C) RE | | |
| | | | | 65 | 5.5 1, | 3,4 | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| I AMMARI E I TI | | 1 ONED | | | IIDDED | | |
| LAMMABLE LI | | LOWER PER F | | | UPPER PER R | EF | |
| | | | | VOL | | EF | |
| ELAMMABLE LI | | | | VOL | | EF | |
| LAMMABLE LI | | | | VOL | | E F | |
| | VOL | PER F | | VOL | | EF | |
| FLAMMABLE LI | VOL | PER F | | | PER R | | |
| AUTOIGNITION DEG C | VOL | PER F | :EF | DE G | PER R | | |
| AUTOIGNITION | VOL | PER F | | DE G | PER R | | |
| AUTOIGNITION DEG C | VOL | PER F | :EF | DE G | PER R | | |
| AUTOIGNITION DEG C | VOL | PER F | :EF | DE G | PER R | | |
| AUTOIGNITION DEG C | VOL TEMPE DELAY(| PER F | EF 22)(33) | DEG (B) | PER R | F | |
| AUTOIGNITION DEG C I 255. | VOL TEMPE DELAY(| PER F | EF 22)(33) | DEG (B) | PER R | PERCENT F | UEL |

SEC-PENTYLBENZENE

| | | | | MW= 148.25 | | | |
|---------------------------|--------------|---------------------|--------|------------|-----------------|---------|------|
| | | | KCA | L/MOLE | CAL/GR | AM REF | |
| HEAT OF COM | BUSTION | | | | | | |
| | | (GROSS) | | | | | |
| HEAT OF VAP | ORIZATI | ON(25 C) | | | | | |
| | | 20 (| DEE | 30 C | | | |
| DENCITY ICD | AM / ML 1 | 20 C | 10 | 9507 | 10 | | |
| DENSITY (GR REFRACTIVE | INDEX | 1.4876 | 19 | 1.4829 | 19 | | |
| SURFACE TEN | SION | 29.41 | 19 | 28.35 | 19 | | |
| VISCOSITY (| CS) | | | | | | |
| VAPOR PRESS | | | | (DEG C) D | | | |
| P 1 | | | | | | 760 | REF |
| 7 31.0 | 70.0 | 93.4 | | 123.9 | | 193.0 | 19 |
| | | | | | | | |
| VAPOR PRES | SURE EQ | UATION C | OEFFIC | IENTS | | | |
| EQUATION 1 EQUATION 2 | A | B | 2.7 | 204 57 | D | MAX ERF | CATP |
| EQUATION 1 | 7.113 | 7 -1692 | .21 | 206.87 | | 56 | 100. |
| EQUALION 2 | 72.05 | 0 -802 | 3.8 | -1.04 | 12.5246 |) | 30. |
| FLASH POINT | (DEG C) | (00) | REF | | | | |
| | | 1007 | | 6 | 8.5 10 | (L) | |
| FLAMMABLE L | IMITS VOL | Lower Per re | F | VOL | UPPER PER RE | F | |
| AUTOIGNITIO DEG C | | | F | DE(| G C REF | : | |
| | | | ***** | | | | |

1-METHYL-3.5-DIETHYLBENZENE

| | | | V.C.I | | CAL /C/ | | |
|----------------------------|--------------------|----------------|---------|-----------------------------------|--------------|--------------|------|
| HEAT OF COM | BUSTIO | N (NET) | | AL/MOLE | CAL/GI | KAM KEF | |
| | | IGROSS | | | | | |
| HEAT OF VAP | ORIZAT | 10N125 C | .) | | | | |
| | | 20 C | RFF | | | | |
| DENSITY (GR | AM/ML) | .8630 | 19 | 30 C .8552 | 19 | | |
| REFRACTIVE | INDEX | 1.4969 | 19 | 1.4921 | 19 | | |
| SURFACE TEN VISCOSITY (| SION CS) | 30.03 | 19 | 28.96 | 19 | | |
| | UREIMM | HG)-TEM | PERATUR | E(DEG C) DAT | Α | | |
| 7 1 T 34 0 | 10 | 30 | 40 | 100 | 400 | 760 200 7 | REF |
| . 30.0 | | 100.0 | | 130.7 | | | |
| VAPOR PRES | SURE E | QUATION | COEFFIC | CIENTS | | | |
| | A | | В | .TENTS C 212.84 -5.30 -9 | D | MAX ERR | AT P |
| EQUATION 1 | 7.23 | 86 -180 | 1.48 | 212.84 | 74.25 | -1.21 | 100. |
| EQUATION 2 | | | | -5.50 -7 | | •03 | |
| | | | | | | | |
| | | | | | | | |
| FLAMMABLE L | IMITS VOL | LOWER PER R | EF | U VOL P | PPER ER F | :EF | |
| AUTOIGNITION DEG C 461. | VOL N TEMPE | PER R | E F | VOL P | ER R | | |

AMYL TOLUENE

SYNONYMS. FORMULA= C12H18 C/H= 7.944 MH= 162.277 VD= 5.5958 KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) 16 C REF DENSITY (GRAM/ML) .8568 2(AE) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF T 214.0 2 VAPOR PRESSURE EQUATION COEFFICIENTS D MAX ERR AT P A B C EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF 82. 1.3.4 UPPER FLAMMABLE LIMITS LOWER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF MAX FLAME VEL (CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY (MILLIJOULE) = QUENCHING DISTANCE(CM)=

1,2-DIISOPROPYLBENZENE

| SYNONYMS. FORMULA= C12H18 | C/H= 7.944 | MW= 162.277 \ | /D= 5.5958 | |
|---|--------------------|-------------------------------------|-------------------|--------------|
| HEAT OF COMBUSTION | N (NET) (GROSS) | L/MOLE C/ | AL/GRAM REF | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | 32.31 19 | .86932 1 | LEF . 9 . 9 | |
| VAPOR PRESSURE(MM P 1 10 T 38.6 78.7 | 30 40 102.6 | 100 4 133.7 | 760 | 19 |
| VAPOR PRESSURE EGA A EQUATION 1 7.218 EQUATION 2 64.75 | MATION COFFEIC | IENTS C 0 209.94 -6.55 4.4 | | AT P 100. |
| FLASH POINT (DEG C | (CC) REF | | REF | |
| FLAMMABLE LIMITS VOL | LOWER PER REF | UPP VOL PER | ER REF | |
| AUTOIGNITION TEMPE DEG C DELAYI 449. | | DEG C | REF | |
| MAX FLAME VEL (CM/S MIN IGN ENERGY(MIL QUENCHING DISTANCE | STOICH | | | UEL |

1,4-D1150PROPYLBENZENE

| SYNONYMS. FORMULA= C12H | 18 C/H | = 7.944 | MW= 162. | 277 VD= | 5.5958 | |
|--------------------------------|-----------|--------------|--------------|----------------|--------------|--------|
| LICAT OF COMPL | CTION INC | | CAL/MOLE | CAL/G | RAM REF | |
| HEAT OF COMBU | | 055) | | | | |
| HEAT OF VAPOR | !ZATION(2 | 5 C) | | | | |
| | 20 | C REF | 30 | C REF | | |
| DENSITY (GRAM REFRACTIVE IN | /ML) .856 | 8 2 98 2 | .849 1.48 | 03 19 51 19 | | |
| SURFACE TENSI VISCOSITY (CS | ON 29.4 | 2 19 | 28.3 | 8 19 | | |
| VAPOR PRESSUR | | | | | | |
| P 1 1 40.0 | 10 | 30 | 40 100 | 400 7 194 3 | 760 209 0 | REF |
| | | | | | 207.0 | |
| VAPOR PRESSU | RE EQUATI | ON COEFF | ICIENTS C | D | MAX ERS | R AT P |
| EQUATION 1 EQUATION 2 | 7.5655 - | 2080.56 | 235.02 | J | •53 | 40. |
| EQUATION 2 | 51.047 | -7653.9 | -4.63 | 19.6015 | .61 | 40. |
| FLASH POINTED | EG C) (| CC) REF | F | (OC) R | EF | |
| | 8 | 1. 190 | (AY) | 76.5 | (AG) | |
| | | | | | | |
| FLAMMABLE LIM | | | | UPPER | | |
| | VOL PER | REF | V | OL PER | REF | |
| | | | | | | |
| | | | | | | |
| AUTOIGNITION | | | | .50.0 | | |
| 449. | ELAY(SEC) | REF 1(AG) | ı | DEG C RI | : r | |
| | | | | | | |
| MAX FLAME VEL | (CM/SEC) | FLAME T | TEMP(DEG K) | V0I | PERCENT F | UEL |
| | | STOL | ICH REF | ARS | AIN REF | |
| MIN IGN ENERGY QUENCHING DIS | | JLE)= | ion nei | AUJ 1 | THE INC. | |

1.2.4-TRIETHYLBENZENE

QUENCHING DISTANCE(CM)=

SYNONYMS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) 20 C REF DENSITY (GRAM/ML) .8738 2 REFRACTIVE INDEX 1.5324 2 SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 T 46.0 88.5 121.7 146.8 193.7 218.0 ______ VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 7.6003 -2148.82 236.79 1.55 400. EQUATION 2 63.368 -8411.8 -6.42 53.8917 1.16 40. 1.16 40. FLASH POINT (DEG C) (CC) REF 83. 1.3 (OC) REF FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE)=

HEXAMETHYLBENZENE

SYNONYMS. MELLITENE FORMULA= C12H18 C/H= 7.944 MH= 162.277 VD= 5.5958 KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) APOR PRESSURE(MM HG)-TEMPERATURETURE C) 2010 200 760 265.0 VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA REF 2 ______ VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF FLAMMABLE LIMITS LOWER VOL PER REF UPPER VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF 375. (22)(24) MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM)=

PHENYLCYCLOHEXANE

SYNONYMS. CYCLOHEXYLBENZENE FORMULA= C12H16 C/H= 8.937 MW= 160.261 VD= 5.5263 KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) 20 C REF DENSITY (GRAM/ML) .9502 2 REFRACTIVE INDEX 1.5329 2 SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE (MM HG)-TEMPERATURE (DEG C) DATA P 1 10 30 40 100 400 760 REF T 67.5 111.3 144.0 169.3 214.6 240.0 21 VAPOR PRESSURE EQUATION COEFFICIENTS D MAX ERR AT P A B C D

EQUATION 1 7.9614 -2416.86 236.03

EQUATION 2 32.533 -7532.1 -1.79 -22.8986 -.91 400. .33 100. ------FLASH POINT(DEG C) (CC) REF (OC) REF 99. 1,3 FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF 105. MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY (MILLIJOULE) = QUENCHING DISTANCE(CM)=

BIPHENYL

SYNONYMS. DIPHENYL, PHENYLBENZENE KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) 77 C REF DENSITY (GRAM/ML) 1.9896 2 REFRACTIVE INDEX 1.588 2 SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C! DATA P 1 10 30 40 100 400 760 REF T 70.6 117.0 152.5 180.7 229.4 254.9 21 VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P
EQUATION 1 7.9609 -2598.32 255.90 2.24 100.
EQUATION 2 58.783 -8732.1 -5.72 82.2036 .88 100. ______ FLASH POINTIDEG C) (CC) REF (OC) REF 113. 1,3,4 124. 4 FLAMMABLE LIMITS LOWER

VOL PER REF

•6 AT 111 C 3

UPPER

VOL PER REF

5.8 AT 155 C 3 DEG C DELAY(SEC) REF AUTOIGNITION TEMPERATURE DEG C REF 540. 3,4 259. 36. 1 49 577. MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF

MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM) =

2-METHYLBIPHENYL

SYNONYMS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) HEAT OF VAPORIZATION(25 C) 20 C REF
DENSITY (GRAM/ML) 1.010 2
REFRACTIVE INDEX 1.5914 2 SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA 1 10 30 40 100 400 760 REF 255.3 2 T VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C REF DEG C DELAY(SEC) REF 502. 12. 49 MAX FLAME VEL (CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE)= QUENCHING DISTANCE(CM)=

2-ETHYLBIPHENYL

QUENCHING DISTANCE(CM)=

SYNONYMS. HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) .89438 11 .89044 11 DENSITY (GRAM/ML) 1.51393 11 1.51150 11 REFRACTIVE INDEX 31.27 (8)(60) 30.76 11 SURFACE TENSION VISCOSITY (CS) 51.0 19(AY) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF T VAPOR PRESSURE EQUATION COEFFICIENTS

R
C
D
MAX ERR AT P EQUATION 1 EQUATION 2 -----FLASH POINTIDES C) (CC) REF (OC) REF FLAMMABLE LIMITS LOWER

VOL PER REF

.88 8(DD) UPPER VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF 479. 24. 49 DEG C REF 510. 50 MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY (MILLIJOULE) =

NONYLBENZENE

| | | | KC./ | AL/MOLE | CAL/GE | AM REF | |
|----------------------|--------------|----------------|-------|---------|----------------|---------|------|
| EAT OF COME | BUSTION | | | 1000 | UNE, U | | |
| EAT OF VAPO | 10 I 2 A T I | IGROS | | | | | |
| THE OF THE | | | | | | | |
| | | | | | | 40 C | RCF |
| ENSITY (GRA | | | | | 19 | | |
| URFACE TENS | | | | | 19 | | |
| ISCOSITY (| | | | 20.00 | . , | 2.47 | 19 |
| | | | | | | | |
| APOR PRESSU | | | | | | 760 | REF |
| 96.0 | | | | | | 282.0 | 19 |
| | | | | | | | |
| VAPOR PRESS | | | | | 0 | MAX ERR | AT D |
| QUATION 1 | | 2 -21 | | | U | | 100. |
| QUATION 2 | | | | | 14.2932 | | 30. |
| | | | | | | | |
| LASH POINT | DEG C) | |) REF | (| OC) RE | F | |
| LAMMABLE LI | | LOWER PER I | | vol | UPPER PER R | EF | |
| UTOIGNITION DEG C | | | REF | DE | :G C RE | F | |
| | | | | | | ******* | |

TRIISOPROPYLBENZENE

SYNONYMS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) 25 C REF DENSITY (GRAM/ML) .854 1 REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA 1 10 30 40 100 400 760 REF 236.5 1 T VAPOR PRESSURE EQUATION COEFFICIENTS D MAX ERR AT P A B C EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF 96. 1 FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM)=

2-N-PROPYLBIPHENYL

SYNONYMS. FORMULA = C15H16 C/H= 11.171 MW= 196.295 VD= 6.7688 KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF 452. 18. 49 MAX FLAME VEL (CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM)=

2-MONOISOPROPYLBIPHENYL

SYNUNYHS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE (MM Hg)-TEMPERATURE (DEG C) DATA 1 10 30 40 100 400 760 REF 270.0 3 T VAPOR PRESSURE EQUATION COEFFICIENTS D MAX ERR AT P A B C EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF 140.5 3 .IMITS LOWER UPPER
VOL PER REF
VOL PER REF
TO STATE TO ST UPPER FLAMMABLE LIMITS LOWER AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF 434. MAX FLAME VEL (CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY (MILLIJOULE) = QUENCHING DISTANCE(CM)=

DECYLBENZENE

| | | | | 86 VD= | | |
|---------------------------------------|--------------------|---------|------------|------------------|------------|------|
| | | KCA | L/MOLE | CAL/G | KAM REF | |
| HEAT OF COMBUSTIC | N (NET) (GROSS) | | | | | |
| EAT OF VAPORIZAT | | | | | | |
| | | | | | | |
| SENCETY (COAM /MI) | 20 C | REF | 30 0 | REF | 40 C | REF |
| DENSITY (GRAM/ML) REFRACTIVE INDEX | 1.48319 | 19 | 1.479 | 19 19 | | |
| SURFACE TENSION | 29.95 | 19 | | | 28.94 | 19 |
| ISCOSITY ICS) | | | | | 2.92 | 19 |
| /APOR PRESSURE(MM | | | FIDEG C) | DATA | | |
| 1 10 | 30 | 40 | 100 | 400 | 760 | REF |
| 109.0 156.0 | 184.0 | | | | 300.0 | 19 |
| VAPOR PRESSURE E | CHATION C | OFFFIC | ! FNTS | | | |
| A | 8 | 001110 | C | D | MAX ERR | AT P |
| A EQUATION 1 7.45 | 40 -2259 | .17 | 194.07 | | 46 | 100. |
| QUATION 2 75.5 | -1117 | 2.4 | -7.78 | 19.7925 | .33 | 30. |
| FLASH POINTIDEG C |) (CC) 107. | | | (OC) R | EF | |
| FLAMMABLE LIMITS VOL | LOWER PER RE | | | UPPER L PER I | REF | |
| AUTOIGNITION TEMP DEG C DELAY | | F | D | EG C R | :F | |
| MAX FLAME VEL(CM/ | SEC) FL | AME TEN | 1P(DEG K) | | PERCENT FL | JEL |

2-BUTYLBIPHENYL SYNONYMS. FORMULA= C16H18 C/H= 10.592 MW= 210.322 VD= 7.2525 KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA 1 10 30 40 100 400 760 REF T VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF ------FLAMMABLE LIMITS LOWER UPPER VOL PER REF

AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF 433. 12. 49

DEG C REF

MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL

> STOICH REF ABS MIN REF

MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM)=

DIAMYLBENZENE SYNONYMS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE (MM HG)-TEMPERATURE (DE G. DATA P 1 10 30 40 100 400 760 265.0 760 REF 1 VAPOR PRESSURE EQUATION COEFFICIENTS D MAX ERR AT P A B EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF 107. 1.3 UPPER VOL PER REF FLAMMABLE LIMITS LOWER VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF

MAX FLAME VEL (CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL

STOICH REF ABS MIN REF

MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM)=

DODECYLBENZENE

| SYNONYMS. 1-PHENY FORMULA = C18H3O | C/H= 7 | ·150 | MW= 246.440 | A D = | 8.4979 | |
|---|---------------------------|-----------------------|----------------------|----------------|---------------|------|
| HEAT OF COMBUSTION | N (NET) (GROSS) | KCA | L/MOLE | CAL/GR | AM REF | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX | .8551 | 19 | 30 C •8481 | 19 | 40 C | REF |
| SURFACE TENSION VISCOSITY (CS) | 30.12 | 19 | 29.14 | 19 | 28.19 4.06 | |
| VAPOR PRESSURE(MM P 1 10 T 132.0 181.0 | 30 | 40 | 100 | 400 | 331.0 | 19 |
| VAPOR PRESSURE E A EQUATION 1 7.45 EQUATION 2 92.6 | B 98 -2360 13 -1297 | 0EFFICE .05 2.3 | IENTS C 184.37 | D | MAX ERR | AT P |
| FLASH POINT(DEG C |) (CC) 140.5 | - | (0 (| C) RE | F | |
| FLAMMABLE LIMITS VOL | | | VOL I | JPPER PER R | EF | |
| AUTOIGNITION TEMPI DEG C DELAY | | | DEG | Ĉ REI | F | |
| MAX FLAME VEL(CM/ | SEC) FL | | | | | EL |
| MIN IGN ENERGY(MII QUENCHING DISTANCE | | ST01CH = | I REF | ABS M | IN REF | |

1.2-DIPHENYL BENZENE SYNONYMS. O-TERPHENYL, O-PHENYLBIPHENYL KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(UEG C) DATA
P 1 10 30 40 100 400 760
332.0 2 ______ VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINTIDES C) (CC) REF (OC) REF 163. 1,3,4 FLAMMABLE LIMITS LOWER VOL PER REF UPPER VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF

STOICH REF ABS MIN REF

MAX FLAME VEL (CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL

MIN IGN ENERGY(MILLIJOULE)= QUENCHING DISTANCE(CM)=

1,3-DIPHENYLBENZENE

QUENCHING DISTANCE (CM)=

SYNONYMS. M-TERPHENYL, M-PHENYLBIPHENYL KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) OR PRESSURE(MM HG)-TEMPERATURE(DEG G) DATA
1 10 30 40 100 400 760 REF
365.0 2 VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA VAPOR PRESSURE EQUATION COEFFICIENTS D A B C MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF 184. 1,3,4 FLAMMABLE LIMITS LOWER UPPER VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) =

1,4-DIPHENYL BENZENE

MIN IGN ENERGY(MILLIJOULF) = QUENCHING DISTANCE(CM) =

SYNONYMS. P-TERPHENYL, P-PHENYLBIPHENYL KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE EQUATION COEFFICIENTS D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF 207. 1:3.4 FLAMMABLE LIMITS LOWER UPPER 1ITS LOWER UPPER VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF 534. 3 MAX FLAME VEL (CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL

316

STOICH REF

ABS MIN REF

TRIAMYLBENZENE

SYNONYMS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) T NOT GIVEN DENSITY (GRAM/ML) .87 1 REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA OR PRESSURE (MM HG) - TEMPERATURE (DEG C) DATA
1 10 30 40 100 400 760 REF
300.0 1 P T VAPOR PRESSURE EQUATION COEFFICIENTS **A** B C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF 132. 1,3,4 UPPER FLAMMABLE LIMITS LOWER UPPER VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL

317

MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM) =

STOICH REF ABS MIN REF

DIAMYLBIPHENYL

KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) 20 C REF DENSITY (GRAM/ML) .938 1 REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF T 370.0 1 VAPOR PRESSURE EQUATION COEFFICIENTS

R
C
D
MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF 171. 1,3 FLAMMABLE LIMIYS LOWER UPPER VOL PER REF AUTOIGNITION TEMPERATURE DEG C PELAY(SEC) REF DEG C REF MAX FLAME VELICM/SEC) FLAME TEMPIDEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY (MILLIJOULE) = QUENCHING DISTANCE (CM) =

TETRAAMYLEENZENE (ISOMERS) SYNONYMS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE (MM HG)-TEMPERATURE (DEG C) DATA 760 REF ſ VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF 146. 3 FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PLR REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF

MAX FLAME VEL (CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL

STOICH REF ABS MIN REF

MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM)=

NAPHTHALENE

| | | KCAL/MC | LE C | AL/GRAM | REF | |
|---------------------------------------|---------------------|----------------|-----------|-------------|----------|------|
| HEAT OF COMBUSTIO | | | | | | |
| HEAT OF VAPORIZAT | (GROSS) | | | | | |
| | | | | | | |
| DENETTY (COAM (ML) | 85 C | | | | | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX | .9/72 | 2 | | | | |
| SURFACE TENSION | 1.5070 | 2 | | | | |
| VISCOSITY (CS) | | | | | | |
| | | | | | | |
| VAPOR PRESSURE(MM P 1 10 | | | | | 74.0 | 0.55 |
| T 52.6 85.8 | | | | | | |
| | | | 140.0 | 73.6 | | |
| VAPOR PRESSURE E | QUATION C | OEFFICIENT | S | | | |
| A EQUATION 1 5.92 | В | С | | D | MAX ERR | AT P |
| EQUATION 1 5.92 | 84 -1060 | .58 126 | .90 | | -12.48 | 10. |
| EQUATION 2 338.7 | | 1.2 -46 | .14 444. | 0812 | -13.75 | 400. |
| FLASH POINTIDEG C |) (CC) | REF | (00) | REF | | |
| | 80. | 1 | 88. | 4 | | |
| | 79. | 3,4 | | | | |
| • | LOWER PER REI 9 1.1 | F 3,4 | 5.9 | _ | | |
| AUTOIGNITION TEMP DEG C DELAY | ERATURE (SEC) RE | - | DEG C | | | |
| 630. | | r 2)(24)(8) | | REF (27) | 451(0) | |
| 560. | | (B) | 587. | | 457(6) | |
| 558. | 1 | , | 526. | _ | | |
| 602. | _ | 7)(33) | 580. | | 76) | |
| | | | | | | |
| AAM CLAME HELLEN! | SECT FIR | AME TEMPID | EG K) | VOL PE | RCENT FL | JEL |
| MAX FLAME VEL (CM/ | , , , | | | | | |

1-METHYLNAPHTHALENE

| | | | 1 | KCAL/MOLE | CAL | /GRAM | REF | |
|-------------------------|------------------|-------------|-----------------|-----------|--------------------------|------------------------|---------|-------------|
| LAT OF COME | 3UST10 | N INET | | | | | | |
| | | IGRO | | | | | | |
| SEAT OF VAPO | DRIZAT | ION(25 | C) | | | | | - - |
| | | 20 C | REI | F 30 (| C RE | F | 37.78 C | REF |
| DENSITY (GRA | M/ML) | 1.020 | 15 19 | 1.01 | 245 19 | | | |
| REFRACTIVE | INDEX | 1.617 | 55 11 | 1.61 | 24 19 | | | |
| SURFACE TENS | SION | 40.68 | 19 | 39.4 | 6 19 | | | |
| VISCOSITY (C | S) | | | | | | 2.209 | |
| APOR PRESSU | JRE (MM | HG) - T | EMPERA | | | | | |
| P 1 | 10 | 3 | 0 | 40 100 | 40 | 0 | 760 | REF |
| 63.5 | 107.4 | 133 | •6 | 167. | 8 | 24 | 44.6 | 19 |
| VAPOR PRESS | SURE FO | OITAUC | N COEFI | FICIENTS | | | | |
| EQUATION L | A | | В | C | D | ı | MAX ERR | AT P |
| EQUATION L | 7.20 | 26 -1 | 956.16 | 208.07 | | | 47 | 100. |
| | | | | | | | 0.4 | 20 |
| QUATION 2 | | | | | | | | 30. |
| QUATION 2 | DEG C | L OWE | C) RI | E F | (OC) | REF REF | .04 | 30. |
| EQUATION 2 FLASH POINT(| DEG C | L OWE | C) RI | EF | (OC) | REF REF | | 30. |
| FLASH POINT | IDEG C | LOWE PER | C) RI | E F | UPPE | REF R R REF | | 30. |
| FLASH POINT | IDEG C | LOWE PER | C) RI | E F V(| UPPEI DL PER | REF R REF | .04 | 30. |
| LASH POINT | MITS VOL | LOWE PER | R REF REF | E F | UPPE DL PER | REF REF 50 | .04 | 30. |
| FLASH POINT | MITS VOL | LOWE PER | C) RI | E F | UPPEI DL PER | REF R REF | .04 | 30. |
| FLASH POINT | IDEG C IMITS VOL | LOWE PER | R REF | E F | (OC) UPPE DL PER 066. | REF REF 50 46 | | |

1-ETHYLNAPHTHALENE

| SYNONYMS. FORMULA= C12H12 | C/H= 11.916 MW | * 156.229 VD= | 5.3872 |
|---------------------------------------|----------------------|--------------------|--------------|
| | KCAL/ | MOLE CAL/GR | AM REF |
| HEAT OF COMBUSTION | (NET) | | |
| HEAT OF VAPORIZATI | (GROSS) ION(25 C) | | |
| | 20 C REF | 30 C REF | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX | 1.00816 19 | 1.00076 19 | |
| SURFACE TENSION | 40.54 19 | 39.37 19 | |
| VISCOSITY (CS) | | | |
| VAPOR PRESSURE(MM | HG)-TEMPERATURE (| | |
| P 1 10 | 30 40 | 100 400 | 760 REF |
| 76.0 120.0 | 146.2 | | |
| VAPOR PRESSURE EC | | | |
| COLLATION 1 7 OOS | B 57 = 1905 00 10 | C D | MAX ERR AT P |
| A EQUATION 1 7.095 EQUATION 2 78.62 | 29 -10293.6 | -8.39 14.7196 | 16 30. |
| FLASH POINTIDES C) | | | |
| | | | |
| FLAMMABLE LIMITS VOL | LOWER PER REF | UPPER VOL PER R | EF |
| AUTOIGNITION TEMPE DEG C DELAY(| | DEG C RE | |
| 481. 6. | 49 | | |
| MAX FLAME VEL (CM/S | EC) FLAME TEMP | DEG K) VOL | PERCENT FUEL |
| MIN IGN ENERGYIMIL | | REF ABS M | IN REF |
| QUENCHING DISTANCE | | | |

BUTYLNAPHTHALENE

MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM) =

SYNONYMS. FORMULA= C14H16 C/H= 10.427 MW= 184.284 VD= 6.3546 KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA 1 10 30 40 100 400 760 REF 290.0 19 T VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 EGUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF 360. 1.3.4 FLAMMABLE LIMITS LOWER UPPER VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY (SEC) REF DEG C REF MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL

STOICH REF ABS MIN REF

AMYLNAPHTHALENE

| SYNONYMS. N-PENTYLNAPHTHALE FORMULA= C15H18 C/H= 9. | | 3.311 VD= 6 | .8383 | |
|---|-----------------|----------------------|---------|------|
| HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) | KCAL/MOLE | CAL/GRAI | M REF | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE FENSION VISCOSITY (CS) | | | | |
| VAPOR PRESSURE(MM HG)-TEMPER P 1 10 30 T | 40 10 | 00 400 | 288.0 | 11 |
| VAPOR PRESSURE EQUATION COL A B EQUATION 1 EQUATION 2 | EFFICIENTS C | | MAX ERR | AT P |
| FLASH POINTIDEG C) (CC) | | | | |
| FLAMMABLE LIMITS LOWER VOL PER REF | | UPPER VOL PER REF | : | |
| AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF | | DEG C REF | | |
| MAX FLAME VEL(CM/SEC) FLAM | | | | JEL |
| MIN IGN ENERGY(MILLIJOULE)= OUENCHING DISTANCE(CM)= | STOICH REF | ABS MIN | I REF | |

NONYLNAPHTHALENE

SYNONYMS. FORMULA= C19H26 C/H= 8.708 MW= 254.419 VD= 8.7731 KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION (25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA OR PRESSURE (MM HG) - TEMPERATURE (DEG C) DATA

1 10 30 40 100 400 760 REF

372.0 11 T VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF 160. 1 FLAMMABLE LIMITS LOWER UPPER VOL PER REF AUYOIGNITION TEMPERATURE DEG C DELAYISEC) REF DEG C REF MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY (MILLIJOULE) = QUENCHING DISTANCE (CM) =

DECYLNAPHTHALENE

SYNONYMS. FORMULA = C20H28 C/H= 8.512 MW= 268.446 VD= 9.2568 KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA 1 10 30 40 100 400 760 REF 387.0 11 T VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT (DEG C) (CC) REF (OC) REF 185. 1 176.5 3 UPPER FLAMMABLE LIMITS LOWER VUL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY (MILLIJOULE) = QUENCHING DISTANCE (CM) =

DIAMYLNAPHTHALENE

SYNONYMS. ------KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION (25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA VAPOR PRESSURE(MM HG)+TEMPERATURE(DEG G) DATA
P 1 10 30 40 100 400 760 REF
T 329.0 3 VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF 157. 1.3 FLAMMABLE LIMITS LOWER UPPER VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF MAX FLAME VEL (CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM)=

ANTHRACENE

SYNONYMS. P-NAPHTHALENE, GREEN OIL FORMULA= C14H) 0 C/H= 16.683 MW= 178.236 VD= 6.1461 KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GKOSS) HEAT OF VAPORIZATION(25 C) 27 C REF DENSITY (GRAM/ML) 1.25 2 REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) YAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 3C 40 100 400 760 REF T 145.0 187.2 217.5 250.0 310.2 342.0 21 VAPOR PRESSURE EQUATION COEFFICIENTS

A B C D MAX ERR AT P

EQUATION 1 6.3963 -1524.02 95.01 -17.29 40.

EQUATION 2 395.132 -33629.8 -52.14 508.6889 -8.26 760. FLASH POINT(DEG C) (CC) REF (OC) REF 121. 1,3,4 196. 4 FLAMMABLE LIMITS LOWER UPPER VOL PER REF AUTOIGNITION TEMPERATURE DEG C REF 1,(22)(45) 539. 3,4 (22)(24)(B) DEG C DELAY(SEC) REF 472. 580. MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY (MILLIJOULE) = QUENCHING DISTANCE(CM)=

1, 2, 3, 4, 5, 6, 7, 8-OCTAHYDROANTHRACENE

SYNONYMS. OCTHRACENE ------KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) OC REF 89 C REF DENSITY (GRAM/ML) 1.134 2 1.5363 2 REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA 1 10 30 40 100 400 760 REF 294.0 2 T VAPOR PRESSURE EQUATION COEFFICIENTS D MAX ERR AT P A B C EQUATION 1 EQUATION 2 FI.ASH POINT(DEG C) (CC) REF (OC) REF FLAMMABLE LIMITS LOWER UPPER VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF (22)(24)(B) 315. MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE)= QUENCHING DISTANCE(CM)=

PHENANTHRENE

| | | | KCAL | /MOLE | CAL/GRA | M REF | |
|--------------------------|---------|----------------|-----------|-----------------|---------|---------|---------|
| HEAT OF COMBU | | NET) GROSS) | | | | | |
| EAT OF VAPOR | | | | | | | |
| | | 20 C | | | | | |
| DENSITY (GRAM | | | | | | | |
| REFRACTIVE IN | | | | | | | |
| SURFACE TENSI | | | | | | | |
| ISCOSITY (CS |) | | | | | | |
| APOR PRESSUR | | | | | | | |
| P 1 F 118•2 1 | 10 | 30 | 40 | 100 | 400 | 760 | REF |
| 118•2 1 | 13.0 | | 215.8 | | 308.0 | | |
| VAPOR PRESSU | | | | ENTS | | | |
| EQUATION 1 | A | 3031 | | C | D | MAX ERR | AT P |
| EQUATION 1 EQUATION 2 | 47 003 | -2821 | • 88 | 450.57 -4 17 | 75 6317 | -1.14 | 400 |
| | | | | | | | |
| FLASH POINT (D | EG C) | (CC) | REF | | | | |
| | | | | 1 | .71. 3 | | |
| | | | | | | | |
| FLAMMABLE LIM | ITS L | OWER | | | UPPER | | |
| | VOL PE | R REI | F | AOF | PER RE | F | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | = | DE | C | | |
| AUTOIGNITION DEG C D | | | F | DE | G C REF | | |
| | | | F | DE | G C REF | | |
| | | | F | DE | G C REF | | |
| DEG C D | ELAY(SE | C) REI | | | | | |
| | ELAY(SE | C) REI | | | | | JEL |

PYRENE

SYNONYMS. BENZO(D, E, F) PHENANTHRENE KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) 23 C REF DENSITY (GRAM/ML) 1.271 2 REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURETURE C. 22...
P 1 10 30 40 100 400 760 377.0 760 REF VAPOR PRESSURE EQUATION COEFFICIENTS

A

B

C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF 199. 3 FLAMMABLE LIMITS LOWER VOL PER REF UPPER VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM)=

FLUORANTHENE

| SYNONYMS. IC/RL, 1.2-BENZOACENAPHTHALEN FORMULA= C16H10 C/H= 19.066 MW= 202 | |
|--|----------------------------------|
| KCAL/MOLE HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) | CAL/GRAM REF |
| O C REF DENSITY (GRAM/ML) 1.252 2 REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | |
| VAPOR PRESSURE (MM HG) - TEMPERATURE (DEG CP 1 10 30 40 10 T | 00 400 760 REF 367.0 3 |
| VAPOR PRESSURE EQUATION COEFFICIENTS A B C EQUATION 1 EQUATION 2 | D MAX ERR AT P |
| FLASH POINT (DEG C) (CC) REF | (OC) REF 210. 3 |
| FLAMMABLE LIMITS LOWER VOL PER REF | UPPER VOL PER REF |
| AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF | DEG C REF |
| MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG STOICH REF MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM) = | K) VOL PERCENT FUEL ABS MIN REF |

DIPHENYLMETHANE

SYNONYMS. BENZYLBENZENE, DITAN KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) 20 C REF DENSITY (GRAM/ML) 1.0060 2 REFRACTIVE INDEX 1.5768 2 SURFACE TENSION VISCOSITY (CS) ______ VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF T 76.0 122.8 157.8 186.3 237.5 264.5 21 ______ VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 7.4930 -2266.36 226.45 -1.64 40. EQUATION 2 61.891 -9113.1 -6.11 46.2985 -1.48 40. -1.64 40. -1.48 40. FLASH POINT(DEG C) (CC) REF 130. 1,3,4 (OC) REF UPPER FLAMMABLE LIMITS LOWER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C REF DEG C DELAY(SEC) REF 517. 18. 49 486. 3,4 MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 2351 (62) 1.39 (73) STOICH REF ABS MIN REF

MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM) =

1.1-DIPHENYLETHANE

| SYNONYMS. ALPHA-METHYLDITAN FORMULA= C14H14 C/H= 11.916 MW= 182. | 268 VD= 6.2851 |
|--|--------------------|
| KCAL /MOLE | CAL/GRAM REF |
| HEAT OF COMBUSTION (NET) | |
| (GROSS) | |
| HEAT OF VAPORIZATION(25 C) | |
| 20 C REF | |
| DENSITY (GRAM/ML) .9875 2 REFRACTIVE INDEX 1.5761 2 | |
| | |
| SURFACE TENSION VISCOSITY (CS) | |
| | |
| VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) | |
| P 1 10 30 40 100 | 286.0 2 |
| | |
| VAPOR PRESSURE EQUATION COEFFICIENTS | |
| A B C | D MAX ERR AT P |
| EQUATION 2 | |
| | |
| FLASH POINT (DEG C) (CC) REF 129. 1 | (OC) REF |
| •• • • | |
| FLAMMABLE LIMITS LOWER | UPPER |
| VOL PER REF V | |
| | |
| AUTOIGNITION TEMPERATURE | |
| | DEG C REF |
| 487. 6. 49 | |
| MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K |) VOL PERCENT FUEL |
| CTOTCH DEE | AGC MIN DEF |
| STOICH REF MIN IGN ENERGY(MILLIJOULE)= | ABS MIN REF |
| QUENCHING DISTANCE(CM)= | |

1,1-DIPHENYL PROPANE

| SYNONYMS. FCRMULA= C15H16 | C/H= 11.17 | 1 Mw= 196.2 | 95 VD= 6. | 7688 | |
|---|------------------------------|-------------|--------------------|--------------|---|
| HEAT OF VAPOR!ZATIO | (NET) (GROSS) DN(25 C) | | CAL/GRAM | REF | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | | | | | |
| VAPOR PRESSURE(MM F P 1 10 | | 40 100 | | | |
| VAPOR PRESSURE EQUATION 1 EQUATION 2 | В | FICIENTS | D | MAX ERR AT P |) |
| FLASH POINT(DEG C) | | | | | |
| FLAMMABLE LIMITS VOL P | | | UPPER L PER REF | | |
| AUTOIGNITION TEMPER DEG C DELAYIS 466. 6. | | D | EG C REF | | |
| MAX FLAME VEL(CM/SE MIN IGN ENERGY(MILL QUENCHING DISTANCE(| ST(| | VOL PE ABS MIN | | |

1.1-DIPHENYL BUTANE

SYNONYMS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA 1 10 30 40 100 400 760 REF T VAPOR PRESSURE EQUATION COEFFICIENTS D MAX ERR AT P A B C EQUATION 1 EQUATION 2 ------FLASH POINT(DEG C) (CC) REF (OC) REF FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF 462. 6. 49 DEG C REF

MAX FLAME VELICM/SEC) FLAME TEMPIDEG K) VOL PERCENT FUEL

STOICH REF ABS MIN REF

MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM)=

TETRALIN

| KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) |
|---|
| CGROSS |
| 20 C REF 25 C REF DENSITY (GRAM/ML) .9702 11 .9662 11 REFRACTIVE INDEX 1.54135 11 1.53919 11 SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE (MM HG)-TEMPERATURE (DEG C) DATA P 1 10 30 40 100 400 760 REF T 38.0 79.0 110.4 135.3 181.8 207.2 21 VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 7.1604 -1800.41 213.41 .75 10. EQUATION 2 67.072 -8464.9 -6.95 20.0315 .59 400. FLASH POINT (DEG C) (CC) REF T7. 1.4 82. 4 T1. 3 FLAMMABLE LIMITS LOWER VOL PER REF .8 AT 100 C 3 5.0 AT 100 C 3 |
| DENSITY (GRAM/ML) .9702 11 .9662 11 REFRACTIVE INDEX 1.54135 11 1.53919 11 SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE (MM HG)-TEMPERATURE (DEG C) DATA P 1 10 30 40 100 400 760 REF T 38.0 79.0 110.4 135.3 181.8 207.2 21 VAPOR PRESSURE EQUATION COEFFICIENTS A C D MAX ERR AT P EQUATION 1 7.1604 -1800.41 213.41 .75 10. EQUATION 2 67.072 -8464.9 -6.95 20.0315 .59 400. FLASH POINT (DEG C) (CC) REF T7. 1.4 82. 4 T1. 3 FLAMMABLE LIMITS LOWER VOL PER REF .8 AT 100 C 3 5.0 AT 100 C 3 |
| SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P1 10 30 40 100 400 760 REF T 38.0 79.0 110.4 135.3 181.8 207.2 21 VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 7.1604 -1800.41 213.41 .75 10. EQUATION 2 67.072 -8464.9 -6.95 20.0315 .59 400. FLASH POINT(DEG C) (CC) REF (OC) REF 77. 1.4 82. 4 71. 3 FLAMMABLE LIMITS LOWER UPPER VOL PER REF .8 AT 100 C 3 5.0 AT 100 C 3 |
| SURFACE TENSION /ISCOSITY (CS) /APOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA 1 10 30 40 100 400 760 REF 1 38.0 79.0 110.4 135.3 181.8 207.2 21 VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 7.1604 -1800.41 213.41 .75 10. EQUATION 2 67.072 -8464.9 -6.95 20.0315 .59 400. FLASH POINT(DEG C) (CC) REF (OC) REF 17. 1.4 82. 4 71. 3 FLAMMABLE LIMITS LOWER VOL PER REF .8 AT 100 C 3 5.0 AT 100 C 3 |
| VAPOR PRESSURE (MM HG)-TEMPERATURE (DEG C) DATA P 1 10 30 40 100 400 760 REF T 38.0 79.0 110.4 135.3 181.8 207.2 21 VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 7.1604 -1800.41 213.41 .75 10. EQUATION 2 67.072 -8464.9 -6.95 20.0315 .59 400. FLASH POINT (DEG C) (CC) REF (OC) REF T7. 1.4 82. 4 T1. 3 FLAMMABLE LIMITS LOWER VOL PER REF .8 AT 100 C 3 5.0 AT 100 C 3 |
| VAPOR PRESSURE (MM HG)-TEMPERATURE (DEG C) DATA P 1 10 30 40 100 400 760 REF T 38.0 79.0 110.4 135.3 181.8 207.2 21 VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 7.1604 -1800.41 213.41 .75 10. EQUATION 2 67.072 -8464.9 -6.95 20.0315 .59 400. FLASH POINT (DEG C) (CC) REF (OC) REF T7. 1,4 82. 4 71. 3 FLAMMABLE LIMITS LOWER VOL PER REF .8 AT 100 C 3 5.0 AT 100 C 3 |
| P 1 10 30 40 100 400 760 REF 38.0 79.0 110.4 135.3 181.8 207.2 21 VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P COUNTIN COEFFICIENTS A B C D MAX ERR AT P COUNTIN COEFFICIENTS EQUATION 1 7.1604 -1800.41 213.41 .75 10.6 EQUATION 2 67.072 -8464.9 -6.95 20.0315 .59 400.6 FLASH POINT (DEG C) (CC) REF (OC) REF 77. 1.4 82. 4 71. 3 |
| VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 7.1604 -1800.41 213.41 .75 10. EQUATION 2 67.072 -8464.9 -6.95 20.0315 .59 400. FLASH POINT(DEG C) (CC) REF (OC) REF 77. 1.4 82. 4 71. 3 FLAMMABLE LIMITS LOWER VOL PER REF .8 AT 100 C 3 5.0 AT 100 C 3 |
| VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 7.1604 -1800.41 213.41 .75 10. EQUATION 2 67.072 -8464.9 -6.95 20.0315 .59 400. FLASH POINT(DEG C) (CC) REF (OC) REF 77. 1.4 82. 4 71. 3 FLAMMABLE LIMITS LOWER UPPER VOL PER REF .8 AT 100 C 3 5.0 AT 100 C 3 |
| A B C D MAX ERR AT P EQUATION 1 7.1604 -1800.41 213.41 .75 10. EQUATION 2 67.07? -8464.9 -6.95 20.0315 .59 400. FLASH POINT(DEG C) (CC) REF 77. 1.4 82. 4 71. 3 FLAMMABLE LIMITS LOWER VOL PER REF 8.8 AT 100 C 3 5.0 AT 100 C 3 |
| EQUATION 2 67.07? -8464.9 -6.95 20.0315 .59 400. FLASH POINT (DEG C) (CC) REF (OC) REF 77. 1.4 82. 4 71. 3 FLAMMABLE LIMITS LOWER UPPER VOL PER REF .8 AT 100 C 3 5.0 AT 100 C 3 |
| EQUATION 2 67.07? -8464.9 -6.95 20.0315 .59 400. FLASH POINT (DEG C) (CC) REF (OC) REF 77. 1.4 82. 4 71. 3 FLAMMABLE LIMITS LOWER UPPER VOL PER REF .8 AT 100 C 3 5.0 AT 100 C 3 |
| FLASH POINT (DEG C) (CC) REF (OC) REF 77. 1,4 82. 4 71. 3 FLAMMABLE LIMITS LOWER UPPER VOL PER REF .8 AT 100 C 3 5.0 AT 100 C 3 |
| 77. 1.4 82. 4 71. 3 FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PER REF -8 AT 100 C 3 5.0 AT 100 C 3 |
| FLAMMABLE LIMITS LOWER UPPER VOL PER REF •8 AT 100 C 3 5.0 AT 100 C 3 |
| VOL PER REF VOL PER REF |
| VOL PER REF VOL PER REF |
| VOL PER REF VOL PER REF |
| .8 AT 100 C 3 5.0 AT 100 C 3 |
| |
| |
| 1 |
| |
| AUTOIGNITION TEMPERATURE |
| DEG C DELAY(SEC) REF DEG C REF 384. 3 420. (22)(24)(8) |
| 423. 6. 49 |
| |
| |
| 1AX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL |
| 36.2 (62)(P) 2319 (62) 1.61 (73) STOICH REF ABS MIN REF |
| IN IGN ENERGY (MILLIJOULE) = |

T-BUTYLTETRALIN

| | | | | C/H= 8 | | = 188.315 | VD= 6. | 4936 | |
|--------------|-----------|------|-------------------|------------------------------|-----------------|---------------------------|----------------|-----------|---------------------------------------|
| | | | | (NET) (GROSS) ON(25 C) | KCAL/ | MOLE | CAL/GRAM | REF | • • • • • • • • • • • • • • • • • • • |
| REFR SURF | ACTIV | ENSI | /ML) DEX ON | .87996 | 11 11 | 25 C .87592 1.50106 | 11 | .87186 | 19 19 |
| | | | | HG)-TEMPE | | DEG C) DAT 100 | | 760 | REF |
| EQUA EQUA | OR PR | 1 2 | RE EQ | UATION CO | | | 0 | MAX ERR / | AT P |
| | | | EG C) | 55.5 | 1(AF) 19(AY) | (00 |) REF | | |
| FLAM | Mable | LIM | | LOWER PER REF | | VOL P | PPER ER REF | | |
| AUTO | DEG | C D | ELAY | RATURE SEC) REF 49 | : | | C REF | | |
| MIN | | NERG | Y(MIL | LIJOULE)= | STOICH | (DEG K) | | | L |

4-VINYL-1-CYCLOHEXENE

| SYNONYMS. 4-ETHENYL FORMULA= C8H12 | -CYCLOHEXENE C/H= 7.944 MW= | 108.185 VD= 3 | .7305 |
|---|--------------------------------|---------------------|--------------|
| HEAT OF COMBUSTION HEAT OF VAPORIZATIO | (NET) (GROSS) N(25 C) | OLE CAL/GRA | |
| DENSITY (GRAM/ML) . REFRACTIVE INDEX 1 SURFACE TENSION VISCOSITY (CS) | 20 C REF 8299 2 | | |
| VAPOR PRESSURE(MM H P 1 10 T | 30 40 | 100 400 | 128.9 2 |
| VAPUR PRESSURE EQU A EQUATION 1 EQUATION 2 | IATION COEFFICIEN 8 | ITS | MAX ERR AT P |
| FLASH POINT(DEG C) | | (OC) REF | : |
| FLAMMABLE LIMITS VOL P | LOWER PER REF | UPPER VOL PER RE | F |
| AUTOIGNITION TEMPER DEG C DELAY(S 269. | ATURE SEC) REF 1,3,4 | DEG C REF | : |
| MAX FLAME VELICE/SE MIN IGN ENERGY(MILL QUENCHING DISTANCE | STOICH | | |

STYRENE

| HEAT OF COMI OF LIQUID | | (N | FT) | 1008 | 10LE .44 .52 | 9 | 682. | 1.1 | |
|-----------------------------|------------|----------|--------|-----------|--------------------|-------|----------------|----------|------|
| HEAT OF VAPO | ORIZATI | ON (25 | C) | | | | | | |
| | | 20 C | RE | F | 25 C | RE | F | 30 C | REF |
| DENSITY (GRA | AM/ML) | .9060 | 0 11 | | .90122 | 2 11 | | .89644 | 19 |
| REFRACTIVE | INDEX | 1.546 | 82 11 | | 1.5439 | 95 11 | | 1.54093 | 19 |
| SURFACE TENS VISCOSITY (| | 32.3 | 19 | | | | | 30.98 | 19 |
| VAPOR PRESSI | IR E (MM | HG)-T | | TURFIC | FG () (| ATA | *** | | |
| P 1 | | | | | | | | 760 | REF |
| T -7.0 | | | | | | | | | |
| VAPOR PRESS | | | | | | | | | |
| THEOR PRES | Δ Δ | CALIU | В | TOTEN | C | D | | MAX ERR | AT P |
| EQUATION 1 | 7.645 | 3 -1 | 922.12 | 25 | 8.41 | | | 66 | 400. |
| QUATION 2 | 24.29 | 9 - | 5164.1 | | 88 | -6.46 | 87 | .63 | 40. |
| FLASH POINT | וחבה רו | | | | | | | | |
| LASII FUINT | DEG C | 31 | . 1 | LI | 3 | 8. | 4 | | |
| | | 32 | . 3 | , 4 | - | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| FLAMMABLE LI | MITS | LOWE | R | | VOL | UPPE | R | | |
| | VUL 1 - | PEK 1 | 1.3.4 | | V UL | . PEK | 1.3.4 | | |
| | | ì | | | | .1 | | | |
| | | • | | | _ | | | | |
| | | | | | | | | | |
| AUTOIGNITION | | | | | 0.5 | C C | DEE | | |
| DEG C 490. | DELATI | 3561 | 1,3,4 | | | G C | | | |
| 490. | | | 54 | | 42 | | 74101 | | |
| | | | | | | | | | |
| | | | CLAME | TEMD/ | | | | DCENT SU | |
| LAV CLAME WE | ., | r | TLAR! | 16月71 | UEG KI | | VUL PE | KUENI FU | CL |
| MAX FLAME VE | .E (Gii) 3 | 20, | | | | | | | |

ALPHA-METHYLSTYRENE

| 15 A T O C C C C C C C C C C C C C C C C C C | | | | | | | |
|--|-----------------------|---------|------------|------------|---------|---------|---------|
| HEAT OF COM | ROZITON | INETI | 1151 | 10LE 50 | CAL/GRA | M KEF | |
| or Ligoto | - 4 | CROSSI | 1204 | 10 | 10189. | 11 | |
| HEAT OF VAP | ORIZATIO | 1(25 C) | | | | | |
| DENSITY (GR REFRACTIVE | | 20 C | REF | 25 C | REF | | |
| DENSITY (GR | AM/ML) . | 9090 | 11 | .9046 | 11 | | |
| REFRACTIVE SURFACE TEN | INDEX 1 | 5386 | 11 | 1.5358 | 11 | | |
| ISCOSITY (| | | | | | | |
| | | | | | | | |
| APOR PRESS | | | | | | 740 | 255 |
| 1 7 4 | 10 | 30 | 40 77 0 | 100 | - 400 | 760 | KEF |
| 7.4 | 47.1 | | 11.8 | 102.2 | 143.0 | 100.4 | 21 |
| VADOR DRES | SURE FOLL | TION C | DEFETCIEN | 211 | | | |
| EQUATION 1 | A | В | | C | D | MAX ERR | AT P |
| QUATION 1 | 8.0472 | -2287 | . 37 27 | 6.98 | | 3.46 | 100. |
| QUATION 2 | | | | | | | |
| TAING HZAI | | | | | | | |
| LASH POINT | | 58. | 1 | 56 | •5 3 | | |
| LAMMABLE L | VOL PE | | | VOL | | | |
| OUTOIGNITION DEG C 494. | N TEMPERA DELAY(SE | | | DEG | C REF | | |
| IAX FLAME VI | EL(CM/SEC |) FLA | AME TEMP(| | VOL I | | JEL |

VINYLTOLUENE

| 4 F A I III II I | IC TROM | | W C | /MAL C | CAL 400 | AM 0.00 | |
|---|-------------------------|---------------------|---------|------------|----------------|------------|--------|
| TEAT OF COME | 02110N | ANCTI | KUAL. | /MOLE | LAL/GR | AM KEF | |
| OF LIQUID | | CDUCCI | 120 | 5.20 | 10100 | • 11 | |
| HEAT OF VAPOR | | | | | | | |
| | 2 | 20 C | REF | 30 C | REF | 40 C | |
| DENSITY (GRAP | M/ML) .8 | 19768 | 19 | .88938 | 19 | | |
| REFRACTIVE IN | NDEX 1. | 54213 | 19 | 1.53415 | 19 | | |
| SURFACE TENS | ION 31 | .53 | 19 | 30.44 | 19 | 29.38 | 19 |
| ISCOSITY (CS | | | | | | ./263 | |
| APOR PRESSU | | | | | | 740 | 0.55 |
| P 1 | 10 | 30 | 40 | 100 | 145 1 | 160 | KEF |
| 18.0 | | | | | | | |
| VAPOR PRESSI EQUATION 1 EQUATION 2 | URE EQUA | TION CO | DEFFICI | ENTS | • | 44 4 4 5 5 | |
| | A | 8 | • | C | D | MAX ERR | ATP |
| EQUATION 1 | 7.3634 | -1/13 | 36 | 214.66 | E 12/7 | •59 | 10. |
| | | | | | | | 40. |
| FLASH POINT(| | 60. | i | 60 | . 4. | 19(K) | |
| | | FIRE | POINT | IDEG C/= 6 | O. KE | F 19 | |
| | | FIRE | POINT | | 6. KE | | |
| | | FIRE | POINT | IDEG C/= 6 | 6. KE | | |
| FLAMMABLE LIN | MITS L VOL PE 1.9 | OWER REF | POINT | VOL | UPPER PER R | EF | |
| | MITS L VOL PE 1.9 | OWER REF | POINT | VOL | UPPER PER R | EF | |
| FLAMMABLE LIN | MITS L VOL PE 1.9 | OWER R REF 19 | POINT : | VOL DEG | UPPER R | E | EL |
| FLAMMABLE LIM | MITS L VOL PE 1.9 | OWER R REF 19 | ME TEMP | VOL DEG | UPPER PER R | PERCENT FU | EL |

M-DIVINYLBENZENE

| SYNONYMS. VINYL STYRENE FORMULA= C10H10 | 30.191 VD= 4.4894 |
|--|--|
| | CAL/GRAM REF |
| HEAT OF COMBUSTION (NET) (GROSS) | |
| HEAT OF VAPORIZATION(25 C) | |
| 20 C REF DENSITY (GRAM/ML) .9289 1 REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | |
| VAPOR PRESSURE (MM HG)-TEMPERATURE (DEG | |
| P 1 10 30 40 1 T 32.7 73.8 105.5 13 | .00 400 760 REF 30-0 175-2 199-5 21 |
| | |
| VAPOR PRESSURE EQUATION COEFFICIENTS A B C | D MAX ERR AT P |
| A B C EQUATION 1 7.4990 -2007.88 235.0 | .67 400. |
| EQUATION 2 54.722 -7630.6 -5.2 | 20 27.356945 100. |
| FLASH POINT(DEG C) (CC) REF 74. 1 | (OC) REF 76. 3 |
| FLAMMABLE LIMITS LOWER VOL PER REF 3 1 | UPPER VOL PER REF |
| AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF | DEG C REF |
| MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG | |
| STOICH REF MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM) = | ABS MIN REF |

BETA-PHELLANDRENE

| D | 760 171.2 MAX ERR | REF 1 |
|-----------------------------|-------------------------|----------|
| REF 2 ATA 400 D | 760 171.2 MAX ERR | REF 1 |
| 2 ATA 400 D | 760 171.2 MAX ERR | REF 1 |
| 400 D | 760 171.2 MAX ERR | REF 1 |
| D | MAX ERR | |
| | | AIP |
| | | |
| OC) REF | | |
| | | |
| UPPER PER REF | : | |
| | | |
| C REF | | |
| VOL P | ERCENT FL | JEL |
| | PER REF | PER REF |

(DL)LIMONENE

QUENCHING DISTANCE(CM)=

| SYNONYMS. DIPENTENE, CINENE FORMULA= C10H16 C/H= 7. | | | |
|--|---|-----------------------------------|---|
| HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) | KCAL/MOLE | CAL/GRAM REF | |
| DENSITY (GRAM/ML) REFRACTIVE INDEX 1.4743 SURFACE TENSION VISCOSITY (CS) | REF 21 C .8402 2 | | |
| VAPOR PRESSURE(MM HG)-TEMPE P 1 10 30 T 14.0 53.8 | 40 100 84.3 108.3 | 400 760 150.5 174.6 | REF 21 |
| VAPOR PRESSURE EQUATION CO A B EQUATION 1 7.6440 -2027. EQUATION 2 35.818 -6186 | DEFFICIENTS C .85 251.31 5.1 -2.52 | D MAX ERR 1.15 8.0835 -1.21 | |
| FLASH POINT(DEG C) (CC) 45. | REF (0 | C) REF | |
| FLAMMABLE LIMITS LOWER VOL PER REF .7 AT 150 C 3 | VOL 6.1 AT 15 | UPPER PER REF O C 3 | |
| AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF 263. 30. 49 | | C REF . 3 | *************************************** |
| MAX FLAME VEL (CM/SEC) FLA | ME TEMP(DEG K) | VOL PERCENT FO | UEL |
| MIN IGN ENERGY(MILLIJOULE)= | | ABS MIN REF | |

PINANE

| | | | KCAL | /MOLE | CAL/GR | RAM REF | |
|--------------------------|-------------------------------|-------------------------------------|------------|--------------|-----------------------------|----------------|-------------|
| HEAT OF CO | OMBUSTION | | | | J. 1 | | |
| HEAT OF V | APOR I ZAT I | (GROSS) |) | | | | |
| ENCLTY / | | 20 C | REF | | | | |
| DENSITY ((REFRACTIVE | | | | | | | |
| SURFACE TO | | | | | | | |
| | | | | | | | |
| VAPOR PRES P 1 | | | | | | 760 | REF |
| T | | | | | | 165.0 | 2 |
| VAPOR PR | | | | | | WAY 500 | |
| EQUATION : | | E | 3 | С | Ü | MAX ERR | AT P |
| EQUATION | 2 | | | | | | |
| | | | | | | | |
| | | | | | | | |
| FLAMMABLE | | LOWER | | | UPPER | cc | |
| FLAMMABLE | VOL | LOWER PER RE | F | VO | | EF | |
| FLAMMABLE | VOL | LOWER PER RE | F | VO | UPPER L PER R | EF | |
| AUTOIGNIT | VOL .7 AT 1 | LOWER PER RE .60 C 3 | F | VC 7.2 AT | UPPER L PER R 160 C 3 | | |
| AUTOIGNIT | VOL .7 AT 1 | LOWER PER RE 60 C 3 | F | VC 7.2 AT | UPPER L PER R | | |
| AUTOIGNIT | VOL .7 AT 1 | LOWER PER RE .60 C 3 | F | VC 7.2 AT | UPPER L PER R 160 C 3 | | |
| AUTOIGNIT DEG (| VOL .7 AT 1 | LOWER PER RE 60 C 3 RATURE SEC) RE | F | 7.2 AT | UPPER R L PER R 160 C 3 | | UEL |
| NUTOIGNITI DEG (| VOL .7 AT 1 ION TEMPE DELAY(| LOWER PER RE 60 C 3 RATURE SEC) RE | F AME TEM | 7.2 AT | UPPER R L PER R 160 C 3 | F PERCENT F | UEL |

ALPHA-PINENE

| | | | KCAL/ | MOLE | CAL | GRAM REF | |
|-------------------------------|---|---------------------|----------|---------------------|--------------|--------------------------|-------------------|
| HEAT OF COM | | | | | | | |
| HEAT OF VAP | • | GROSS) 125 C) | | | | | |
| | | | | | | | |
| DENSITY (GR. | | 0 C 6 | | | | | |
| REFRACTIVE | | +658 | 2 | | | | |
| SURFACE TEN. VISCOSITY (| | | | | | | |
| | | | | | | | |
| VAPOR PRESSI P 1 | | | | | | 760 | REF |
| T -1.0 | 37.3 | | 66.8 | 90.1 | 132. | 3 155.0 | 21 |
| VAPOR PRES | | | EFFICIE! | | | | |
| CONSTRAIN S | A | | | C | D | | RR AT P |
| EQUATION 1 EQUATION 2 | | | | | 30.065 | | 78 400. 18 40. |
| | | | | | | | |
| FLASH POINT | (DEG C) | 33. | | ţ | 00) | KEF | |
| | | | | | | | |
| FLAMMABLE L | | OWER REF | | VOL | UPPER PER | | |
| AUTOIGNITION DEG C | VOL PER | URE C) REF | | DE | PER | REF | |
| AUTOIGNITION DEG C | VOL PER | REF | | DE | PER | REF | |
| | VOL PER N TEMPERAT DELAY(SEC 60. | URE () REF 49 | | DE 27 | PER G C | REF REF (22)(33)(8 | |
| AUTOIGNITION DEG C 263. | VOL PER N TEMPERAT DELAY(SEC 60. | URE 1) REF 49 | 1E TEMP | DE 27 (DEG K) | PER G C | REF REF (22)(33)(8 | |

1-PHENYL-2-BUTENE

SYNONYMS. FORMULA= C10H12 C/H= 9.930 MW= 132.207 VD= 4.5589 KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) 20 C REF DENSITY (GRAM/ML) REFRACTIVE INDEX 1.511 10 SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA 1 10 30 40 100 400 760 REF 174.5 3 T VAPOR PRESSURE EQUATION COEFFICIENTS

R
C
D
MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINT(DEG C) (CC) REF (OC) REF 71. 3,10(L) FLAMMABLE LIMITS LOWER UPPER VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM)=

1.3-DIMETHYL-1.3-DIPHENYLCYCLOBUTANE

| SYNONYMS. FORMULA= C18H20 |
|--|
| KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) |
| DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) |
| VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA P 1 10 30 40 100 400 760 REF T 308.0 3 |
| VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 EQUATION 2 |
| FLASH POINT(DEG C) (CC) REF (OC) REF 143. 3 |
| FLAMMABLE LIMITS LOWER UPPER VOL PER REF VOL PER REF |
| AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF |
| MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE) = QUENCHING DISTANCE(CM) = |

METHYLENE CYCLOBUTANE

| SYNONYMS. FORMULA= C6H10 | C/H= 7.15 | 0 Mw= 82.1 | 47 VD= 2.8 | 326 |
|---|-----------------------------------|---------------|--------------------|--------------|
| HEAT OF COMBUSTI | (ON (NET) (GROSS) | KCAL/MOLE | CAL/GRAM | REF |
| DENSITY (GRAM/ML REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) | | | | |
| VAPOR PRESSURE(M P 1 10 | 30 | 40 100 | 400 | 760 REF |
| VAPOR PRESSURE A EQUATION 1 EQUATION 2 | EQUATION COEFF | FICIENTS C | D | MAX ERR AT P |
| FLASH POINT(DEG | C) (CC) RE | E F | (OC) REF | |
| FLAMMABLE LIMITS VO | LOWER OL PER REF | vo | UPPER L PER REF | |
| AUTOIGNITION TEM DEG C DELA | PERATURE Y(SEC) REF | D | EG C REF | |
| MAX FLAME VEL(CM 51.5 (72) MIN IGN ENERGY(M QUENCHING DISTAN | /SEC) FLAME STO ILLIJOULE)= | | VOL PE | 5 (72) |

SPIROPENTANE

SYNONYMS. KCAL/MOLE CAL/GRAM REF HEAT OF COMBUSTION (NET) (GROSS) HEAT OF VAPORIZATION(25 C) DENSITY (GRAM/ML) REFRACTIVE INDEX SURFACE TENSION VISCOSITY (CS) VAPOR PRESSURE(MM HG)-TEMPERATURE(DEG C) DATA 1 10 30 40 100 400 760 REF T VAPOR PRESSURE EQUATION COEFFICIENTS A B C D MAX ERR AT P EQUATION 1 EQUATION 2 FLASH POINTIDEG C) (CC) REF (OC) REF UPPER FLAMMABLE LIMITS LOWER VOL PER REF VOL PER REF AUTOIGNITION TEMPERATURE DEG C DELAY(SEC) REF DEG C REF MAX FLAME VEL(CM/SEC) FLAME TEMP(DEG K) VOL PERCENT FUEL 3.46 (72)
STOICH REF ABS MIN REF MIN IGN ENERGY(MILLIJOULE)= QUENCHING DISTANCE(CM)=

V. NOTES

- A Upward propagation with lower tube end open.
- B In atmosphere of oxygen.
- C Apparent values at 15.56 degrees C.
- D At saturation pressure.
- E Using flanged electrodes.
- F Using 0.0225-in. S.S. electrodes with spark duration of 1 MSEC.
- G Absolute values from weights in vacuum.
- H Upward propagation in a 2-in. tube closed at both ends.
- J Tag closed cup.
- K Cleveland open cup.
- L Tag open cup.
- M Extrapolated to room temperature from values at higher temps.
- N Values obtained on platinum plate.
- P Measured at elevated temperature by Bunsen Burner Schlieren total-area method and extrapolated to room temp.
- Q Calculated from specific gravity.
- R At normal boiling point.
- S Value listed under cetane.
- T For the undercooled liquid below the normal freezing point.
- U Values were determined in a 2-in, diameter tube closed at both ends with upward propagation. Data were taken off curves since no tabulated data were given. The data were converted from percent stoichiometric at 360 mm pressure.
- V Values were determined in a 2-in. diameter tube closed at both ends with upward propagation. Data were taken off curves since no tabulated data were given. The data wave converted from percent stoichiometric at 340 mm pressure.
- W Tube diameter 7.5 cm., tube 150 cm. long closed at both ends.
- X Upward propagation.
- Y Horizontal propagation.
- Z Downward propagation.

- AA Tube diameter 5.0 cm., tube 150 cm. long closed at both ends.
- BB Using unflanged electrodes.
- CC Value listed under Dimethyl Butane.
- DD Reference gives the value as estimated.
- EE For solid-vapor equilibrium.
- FF Value listed under 2-Ethylbutane.
- GG Value listed under Tetramethylpentane.
- HH Value listed under 1.4-Dimethylcyclohexane.
- JJ Value listed under Decalin.
- KK Formula given in reference as C12H18.
- LL Value listed under Butylene.
- MM Value listed under Diisobutylene.
- NN Value 1. sted under B-N-Amylene.
- PP Value listed under N-Amylene.
- QQ Value listed under 2,4,4-Trimethyl-1-Pentene.
- RR Value listed under Hexylene.
- SS Value refers to a mixture of 35.6 percent Trans-2-Hexene and 63.6 percent CIS-2-Hexene.
- TT Value listed under Alpha-N-Heptylcne.
- UU Value refers to a mixture of 17.0 percent Trans-2-Heptene and 82.3 percent CIS-2-Heptene.
- VV Value refers to a mixture of 4 percent Trans-2-Heptene and 96 percent CIS-2-Heptene.
- Value refers to a mixture of 57.5 percent Trans-3-Heptene.
 38.8 percent CIS-3-Heptene, 1.2 percent Trans-2-Heptene, 0.6 percent CIS-2-Heptene, and 1.9 percent lights.
- XX Value is average of CIS and Trans isomers.
- YY Value listed under Butadiene.
- Value refers to a mixture of 83.0 percent Trans-1,3-Pentadiene,7.9 percent CIS-1,3-Pentadiene, and 8.2 percent Cyclopentene.

- AB Value listed under Diallyl.
- AC Value listed under Crotonylene.
- AD For technical grade material.
- AE Value listed under 4-Methyl Pentyl Benzene.
- AF Value listed under Diethyl Benzene.
- AG Value listed under Diisopropylbenzene.
- All Value listed under Dipentene.
- AJ Value listed under Pinene.
- AK 5X180-cc vertical tube.
- AL Heated in an 88-cc Quartz Bulb.
- AM Heated in a 131-cc Quartz Bulb.
- AN Procedure involves dropping liquid on bath surface.
- AP Procedure involves dropping liquid into porcelain crucible.
- AQ 740 mm Hg.
- AR Saybolt Seconds Universal
- AS 15 mm Hg.
- AT 125-cc/Min air flow, dropwise addition into 43-cc S.S. cup.
- AU Zero air flow, dropwise addition into 43-cc S.S. cup.
- AV 131-cc Quartz Bulb, 81.6-86.7 percent C,H,
- AW 131-cc Quartz Bulb, 30.6-38.4 percent C_2H_2 .
- AX ASTM D86-30, Quartz Flask.

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| Many tabulations of hydrocarbon colliterature. Unfortunately, most of the best value for each property, and do not report presents a compilation of combustin a variety of combustion problems. Expoint, flammability limits, autoignitic minimum ignition energy, and quenching molecular weight, carbon-hydrogen ratio vaporization, liquid density, refractive vapor pressure data. | ese report what of include all of tion and physic deferenced value on temperature, distance. The o, vapor density | the authorombustion cal proper es are incommaximum fightysical v. heats of | or believes to be the properties. This rties which can be used cluded for flash flame velocity, properties include of combustion and | | | | | | | | |
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Uncla Secure Classification LINK B LINK A LINK C KEY WORDS ROLE WT ROLE ROLE Hydrocarbon Combustion Data Flash Point Autoignit ion Temperature Flammability Limits Minimum Ignition Energy

Unclassified